

DENVER BOTANIC GARDENS

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DENVER 6, COLORADO



The Green Thumb

Magazine for Rocky Mountain Gardeners

PROGRESS AND
GROWTH; HOW
ESSENTIAL
ARE THEY?

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WHY DENVER
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The Green Thumb

Vol. 18

No. 1

To conduct research on plants, both native and exotic, in varied plant zones of our reigon; to evaluate their economic, medicinal and horticultural potentials.

To coordinate the knowledge and experience of botanists, horticulturists and gardeners.

To educate the public in the best use of horticultural materials.

To maintain a large collection of plant species and varieties for study and display.

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SENT FREE TO ALL MEMBERS OF THE ORGANIZATION. REGULAR MEMBERSHIP, \$5.00; PARTICIPATING, \$10.00; SUPPORTING, \$25.00; CONTRIBUTING, \$50.00; SUSTAINING, \$100.00.

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EA 2-9656

MA 3-1133, Ext. 428

909 YORK ST.

DENVER 6, COLORADO

Members



PROGRESS AND GROWTH; HOW ESSENTIAL ARE THEY?

LAWRENCE A. LONG, *President*

Our group has never faced a greater challenge than now. We have accepted that challenge, but how well we succeed depends entirely on you, on all of us. We believe we have the formula. Where could anyone find a more fertile field than in our community, our membership and our potential? Plant now the seeds of friendly, cooperative and united effort. Sprinkle this regularly with enthusiasm and imagination, keep out the weeds of discord and complacency, and soon our garden will flower with success. That's the formula! To miss now would be to set the cause of horticulture in this area back 20 years. Our course is charted, we're on our way and with your help success is within easy reach.

Already enthusiasm is being generated for our new MEMBERSHIP effort. 2,000 new members by April 30! That's our goal, and here's the first way you can help. It's so easy to think Botanic Gardens, talk Botanic Gardens and come right out and ask your friends, neighbors and anyone else "Are you a member of Denver Botanic Gardens?" New members are essential not only for practical economic reasons, but more especially for the enthusiasm they inevitably generate. Let's see how many we will have at our Annual Dinner in February.

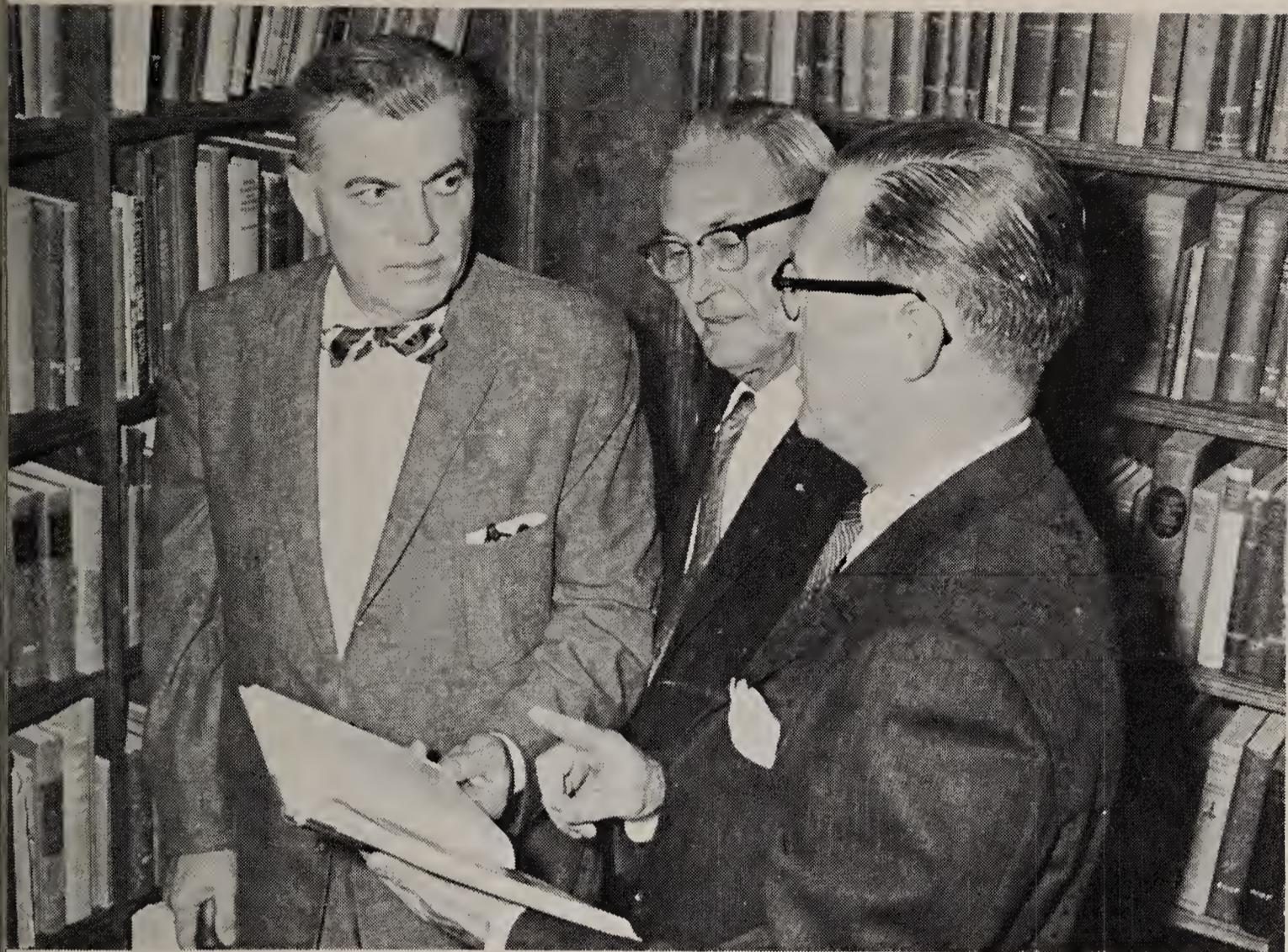
The Botanic Gardens have many responsibilities and a more than equal number of plans. As you no doubt know, the city gives funds for maintenance of our 18 acres of city property on York Street; and the Foundation is responsible for all capital improvements. Among the current responsibilities: overseeing some of the gardens in city park, and maintaining an Alpine trail on Mount Goliath, near Echo Lake which we developed. Another zonal garden in Red Rocks Park, developed by the Gardens is nearing completion, and many more are planned in the area.

Dr. A. C. Hildreth, director of the Gardens, has stated the responsibilities: "We serve the public through research on plant problems of the area, development of our projects, and by education on matters pertaining to botany and horticulture."

Education is offered by the publication of "Green Thumb"—the Rocky Mountain's definitive garden magazine—and by the maintenance of information service on garden problems at Headquarters House. The Children's garden program, which is open to all children in the area, is a fine example of the education program, as are the courses offered at Botanic Gardens House on a variety of botanic and horticultural subjects. These courses are, of course, open to the public.

Research is underway at the gardens on varieties of flowers and shrubs which flourish in this climate. The findings of this research will benefit all gardeners. One of the greatest challenges is to develop the finest botanic gardens in the country. We look forward to having a conservatory where plants of all climates may be on display and which will make the gardens a winter attraction as well as summer pleasure.

In short, the Botanic Gardens will be the hub of all activity in the entire region allied with the field of horticulture and botany, and that is the answer to how essential Progress and Growth are to Denver Botanic Gardens.



Mayor Batterton, left; President Long, right, and Scott Wilmore examining The HELEN FOWLER LIBRARY.

LETTER FROM MAYOR BATTERTON

Dear Larry:

It seems most appropriate at the beginning of a new year to extend to you and the members of your organization my very best wishes for 1961.

I feel that the recent consolidation of the Denver Botanic Gardens with the Colorado Forestry and Horticulture Association cannot help but contribute immeasurably to the effectiveness of your efforts. Be assured of my continued support for the worthwhile program being carried out under your leadership. May the coming year bring you every success.

Sincerely,

Dick Batterton

Mayor

GUEST EDITORIAL

EVERETT C. LONG

Cottonwood trees along the river banks, native shrubs and wildflowers were the main botanical features encountered by thousands of settlers streaming across the plains to the Denver area a century ago. Today, the ameliorating influences of an advancing civilization have in many ways modified the raw, rugged, hardy life of our pioneers. That hallmark of a mature society, horticultural sophistication, keeps pace, with even greater promise for the future sparked by the Denver Botanic Gardens.

Horticultural achievement in this area by both the private gardeners and commercial nurseries needs no apologies. With the advent of the Denver Botanic Gardens new vistas unfold. Here is the opportunity for horticultural education, beautification and edification. Here is the chance to disseminate information on problems and possibilities of local concern through *The Green Thumb*, Colorado's unique, long-established, authoritative magazine. Here can be undertaken scientific experiments, beyond the scope of the individual, to add to the horticultural knowledge of this region.

Denver Botanic Gardens, youthful in years, has many accomplishments to its credit. Infinitely greater achievements are possible through expanded interest and support. Your help in expanding membership to include all interested in horticulture in this area will implement full realization of the tremendous inherent possibilities.

Calendar of Events

FEBRUARY, 1961

Wednesday, Feb. 1: 7:30 p.m. Botany Club.
Thursday, Feb. 2: 7:45 p.m. Orchid Society.
Monday, Feb. 6: 9:30 a.m. Junior Committee, Mrs. Brown.
Tuesday, Feb. 7: 1:00 p.m. Mountain View Garden Club Luncheon Meeting; 8:00 p.m. Forestry and Tree Maintenance Class, Dr. Hildreth.
Thursday, Feb. 9: 7:30 p.m. Rose Society.
Friday, Feb. 10: 7:30 p.m. Landscape Contractors.

Monday, Feb. 13: 10:00 a.m. Judges' Council; 7:30 p.m. Alta Vista Garden Club, Mr. Gundell, Speaker.

Tuesday, Feb. 14: 7:30 p.m. Evergreen Garden Club.

Wednesday, Feb. 15: 9:30 a.m. "Fun with Flowers" Workshop; 10:00 a.m. Herbarium Study Group. Mrs. Kalmbach.

Thursday, February 16: 10:00 a.m. "Around the Seasons" Study Group.

Friday, Feb. 17: 7:45 p.m. Botany Club. Public invited.

Tuesday, Feb. 21: 8:00 p.m. Forestry and Tree Maintenance Class, Dr. Hildreth.

Thursday, Feb. 23: 1:00 p.m. Civic Garden Club, Div. A, Luncheon Meeting.

Friday, Feb. 24: 7:30 p.m. Landscape Contractors.

March 26th thru April 2nd: Colorado Garden Show, Stockyards Stadium.



OUR STAFF — From left to right. Back row: Mr. Charles P. Barone, Gardener-Florist; Mr. Ragnar Bramberg, Gardener, and Mr. Edwin N. Fennell, Gardener-Florist (apprentice). Front row: Mrs. Helen M. Vincent, Clerical Assistant; Dr. A. C. Hildreth, Director, and Miss Bertha M. Durfee, Clerk-Stenographer.

ANNUAL DINNER

The annual membership dinner will be held Sunday, February 12, 1961, at the Denver Country Club. Mark your calendar for this special event and plan to attend. Get your tickets now for we can accommodate only 300 people.

SPECIAL TRIBUTE

Special tribute is awarded to M. Walter Pesman for his untiring work on this issue of *The Green Thumb* as editor *pro tem*.

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THE
COLORADO
NURSERYMEN'S
ASSOCIATION



KEN WILMORE, *President*

The Colorado Nurserymen's Association is fully aware of the importance of the Denver Botanic Gardens, and will work with it to our utmost capacities.

We of the C.N.A. realize that the Denver Botanic Gardens will add not only aesthetic interest to our city, but invaluable informational assistance to the Colorado nursery industry.

Therefore we wish the best of success to the Denver Botanic Gardens and pledge 100% cooperation from the Colorado Nurserymen's Association.

What is this organization? It was established in 1924 when the nursery industry was a mere infant as compared to the thriving status it now holds in Colorado.

Quality and Ethics are its purposes. Quality and Ethics are the watchwords. Without Quality and Ethics, no nurseryman can be a member of the Colorado Nurserymen's Association.

During its formative years a group of men representing the nursery business could see the potential in the trade and along with it the problems that would arise and face the industry. They realized the climatic problems, soil problems, and other factors that would affect the nursery business.

Their major activities at that time were increasing the hardy plant list through experimentation and trial and error. Also there were other factors to consider such as a cooperative price structure that would increase the profits of their businesses.

In naming as many of these original members as I can, they were: D. M. Andrews, Boulder; Armand Barteldes, Denver; R. J. Curry, Ft. Morgan; Carl Ferguson, Denver; Arthur Langman, Colorado Springs; Mrs. Kathleen Marriage, Colorado Springs; John T. Roberts, Littleton; Aaron Sonnenborn, Pueblo; D. W. Spangler, Longmont; G. A. Tolleson, Wheatridge; Ray Williams, Greeley, and Charles Wilmore, Wheatridge.

Up through the years, the membership has swelled to more than forty members, representing nearly every section of the state.

In conclusion, let us again express our great appreciation of the work in which the Denver Botanic Garden is engaged, and our eagerness to help along in its various activities. With the newly accomplished merger the Botanic Gardens is all the better equipped for assisting all of us, in any form of horticulture, both educationally and practically.

COMMITTEES FOR 1961

The Committees listed below are not complete. It is hoped that many more of our members will help in making 1961 a banner year.

If you wish to join in this fine venture phone Botanic Gardens House, MA 3-1133, Ext. 428 or EA 2-9656 and let us add your name to the committee of your choice.

1. *Finance Committee*: Mr. John Mitchell, Chairman.

Messrs. J. C. Blickensderfer, Hudson Moore Jr., John Welborn, Dr. J. Harrison Belknap.

2. *Membership*: Mrs. Jess Gibson, Chairman.

Mmes. Mackintosh Brown, Vella Hood Conrad, Douglas Goforth, Eugene Kramer, John A. Moore, Dr. J. R. Durrance, Mr. Clyde Learned, Mr. W. M. Fleisher, (Pueblo).

3. *Publications*: Mr. M. Walter Pesman, Chairman.

Miss Julia Andrews, Mmes. Alexander Barbour, William H. Crisp, John Scott, James P. Steele, J. V. Peterson, Edmund Wallace, Mr. and Mrs. Everett Long (Boulder).

Messrs. Patrick Gallavan, Fred Johnson. Dr. A. C. Hildreth, Dr. Moras Shubert, Dr. Helen Zeiner. Advertising — Mrs. Vella Hood Conrad.

4. *Education Committee*: Dr. Moras Shubert.

Mrs. James Rae Arneill, Dr. Helen Zeiner, Dr. A. C. Hildreth.

5. *Children's Gardens*: Mrs. Giles Filley, Chairman.

Dr. J. R. Durrance, Mrs. Joseph V. Vleck, Mrs. Lloyd Watkins, Mrs. Seymour Simmons, Jr., Mrs. James Waring.

6. *Planning Committee*

Dr. J. R. Durrance, Mrs. George H. Garrey, Mrs. Edward H. Honnen, Mrs. James Waring.

7. *House Committee*: Mrs. Frank McLister, Chairman.

Mrs. C. C. Buckbee, Mrs. Ivan Carpenter, Mrs. Vella Hood Conrad.

8. *Grounds Committee*: Mrs. James Rae Arneill, Chairman; Mrs. Cass Herrington, Mrs. J. Churchill Owen.

9. *Library Committee*: Mrs. Moras Shubert, Consultant.

Mrs. George Argall, Mrs. Mackintosh Brown, Mrs. John W. Newman.

10. *Herbarium Committee*: Mrs. E. R. Kalmbach, Chairman.

Mrs. Edward Mixa, Boulder; Mrs. George Kelly, Mrs. J. V. Peterson, Mrs. J. P. Steele, Mrs. Jackson C. Thode, Miss Alice Wood, Colorado Springs.

11. *Denver Botanic Gardens Junior Committee*: Mrs. Mackintosh Brown, President.

Mrs. Donald E. Thomas, Vice President; Mrs. C. O. Arnold, Cor. Secretary; Mrs. Wm. C. Jackson, Jr., Rec. Secretary; Mrs. Schuyler Grey, Treasurer.

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12. *Garden Tours*: Mr. Herbert Gundell, Chairman; Mrs. C. C. Buckbee, Mr. Fred Johnson.
13. "*Around the Seasons*" An assistance group.
Mrs. Graham Morrison, Chairman.
14. *Annual Dinner*: Mrs. Benjamin Stapleton, Jr., Chairman.
15. *Plant Auction and Fiesta*
Mrs. James Rae Arneill, Mrs. Glen Clayton, Mrs. Vella Hood Conrad, Mrs. Mackintosh Brown, Mrs. Roland Enos, Mrs. Malcom Erickson, Mrs. George H. Garrey, Mrs. Jess Gibson, Mrs. Cass Herrington, Mrs. Edw. H. Honnen, Mrs. James Hollister, Mrs. Guilford Jones, Mrs. John Mackenzie, Mrs. Alonzo Lilly, Mrs. Lawrence Long, Mrs. Frank McLister, Mrs. Persis Owen, Mrs. C. O. Parker, Louisville, Mrs. James Waring, Mrs. P. D. Whitaker, Mrs. John Welborn, Mrs. Kernan Weckbaugh.



Where did I bury that nut? Mr. Squirrel buries many nuts and fortunately he does not find all that he puts away. Many trees are started this way. It is an interesting form of seed dispersal.

What a Membership in the Botanic Garden Can Mean to You

MRS. ELNA GIBSON

A membership in many organizations means merely a generous gesture to help support the work of that organization. In the case of the Denver Botanic Gardens, Inc. it also means support very definitely, but it carries the added feature of being a two-way affair. The Botanic Garden has things to offer in return for the donation to your work or pleasure or both! Your membership entitles you to participate in their activities as well as enjoy their premises and possessions.

The Headquarters Building, a handsome roomy mansion at 909 York Street, has meeting rooms, a fully equipped dining room and kitchen, for the use, at a nominal fee, for garden clubs. The Helen Fowler Library, one of the best collections of horticultural books in the west, is located there in a big comfortable room, where one may read and study. Upstairs, carefully labeled and shelved, is the Herbarium, a collection of dried plants, very useful to botanists and students. In the summertime the expanding main garden and the Children's Garden can be visited and explored.

Last but not least, the Green Thumb magazine, familiar to all members of the Colorado Forestry and Horticultural Association, will continue its invaluable information service to the members of the Denver Botanic Gardens.



HONORING KATHRYN KALMBACH — Mrs. James Waring, left, and President Lawrence Long, center, look on as Mrs. Kathryn Kalmbach shows some of the specimens of the Kathryn Kalmbach Herbarium.

They Got Together

THE members of the Boards of Trustees of the Denver Botanic Gardens and the Colorado Forestry and Horticulture Association, their wives and husbands, and the staffs of the two organizations assembled at Botanic Gardens House, Sunday evening, November 13, to celebrate the merging of the two organizations.

Dr. and Mrs. James J. Waring, gracious host and hostess for the occasion, welcomed the guests. Following a social hour, a buffet supper was served.

Lawrence Long, President of Botanic Gardens, introduced guests Mayor and Mrs. Richard Batterton, Ben C. Essig, President of the Zoological Garden Foundation, Mrs. C. C. Buckbee, President of the Colorado Federation of Garden Clubs, and Mr. Buckbee.

Mr. Long said this occasion is the beginning of greater things for Denver and the State in the establishment of a botanical garden that will be of inestimable value to the Great Plains

and the Central Rocky Mountain Regions.

A bronze plaque, to be placed at the entrance of the Helen Fowler Library, was unveiled. Mr. Long paid tribute to the late Mrs. Fowler for her unselfish work in assembling 8,000 volumes on gardening, landscaping, horticulture and conservation.

A plaque, honoring Mrs. Kathryn Kalmbach for her work in assembling a herbarium containing over 2,000 botanical specimens, was unveiled. This herbarium will hereafter be known as the Kathryn Kalmbach Herbarium.

Mr. Long introduced Scott Wilmore, President of the Colorado Forestry and Horticulture Association, who presented Patrick J. Gallavan, retiring manager of the Association and editor of the Green Thumb, with a purse of \$300 in appreciation of his services during the past five years. This gift came from members of the Board of Trustees and other friends.

FRED R. JOHNSON.

HELEN K. FOWLER

Mrs. Helen K. Fowler, 81, of 10000 W. 44th Ave., Wheatridge, widely known nursery owner and landscape gardener, died Tuesday, November 2, at Sands House Sanitorium.

Born at Eau Claire, Wisconsin, Mrs. Fowler attended Vassar College, Poughkeepsie, New York and the University of Wisconsin.

She and her husband, John, operated the Shadow Valley Nursery Gardens for many years. Mr. Fowler died in December, 1959.

Mrs. Fowler was a member of the Colorado Forestry and Horticulture Association, and was an honorary trustee of that organization. The library at the Denver Botanic Gardens is named in her honor, and will be known as the Helen Fowler Memorial Library.

Helen Fowler was a woman of many talents. To know her was to love her. I will remember most the Persian Proverb she liked so much. It was symbolic of her way of life.

Unselfishness

What I kept I lost,
What I spent I had,
What I gave I have.

The Upward Look in Tree Planting

The forest giants such as American Elm, Honey Locust, Soft Maple and Cottonwood have caused us to look upward to see their tops.

The numerous costs of large shade trees, high maintenance, removing storm damaged branches, clearing power and telephone lines, and excessive shade make us wonder if there is not a solution.

The Right Tree in the Right Place is the answer. We still can use the large trees in places where they have enough space both above and below ground to reach full maturity. The constant clipping and cutting to keep a large tree small would be reduced.

There is nothing more beautiful than the old cottonwoods at this time of year. Next time you are driving along the highway glance at the old giants, which have survived and enjoy the lacy patterns of their branches.

In your own back yard such a sight is only available on a miniature scale because you need sun for the flowers and space for croquet, room for the service lines and sunlight in your home. The use of smaller trees will solve many of the problems, e.g. the flowering crabs, littleleaf linden, European mountainash, fruit trees and narrow upright trees e.g. column linden, maple or oak and horse-chestnut. These trees might be called miniatures.

Plant scientists and nurserymen are developing and selecting trees "tailored" for a location. Globe-headed locust, elm, hawthorn, umbrella catalpa will stay small enough to never interfere with utility lines. Upright or columnar maples, oaks and linden will fit into the small spaces. The Golden Rain tree grows into a small ornamental specimen. Now when planting that shade tree this spring, look up and around for the space for the tree to grow.

—Earl J. Sinnamon

GARDENING WITH COLORADO WILDINGS III

RUTH ASHTON NELSON

NATIVE SHRUBS

THE WOODY plants of our mountains and foothills provide several species which are useful for landscaping purposes. As with other wildings most of them look best when grown in moderately dry situations. As I have said before, a little more water than they receive in nature increases their beauty, however, the amount we ordinarily give our lawns and cultivated shrubs makes them appear rank and overgrown. If they become lush and soft in growth they frequently soon die. I have divided them into five groups as follows and will take up each group in a separate article.*

Our Tall (5'-10'), Deciduous Shrubs for Dry Locations.

Our Tall Deciduous Shrubs for Moist Locations.

Our Medium Sized and Small Shrubs.

Our Rare or Difficult Shrubs.

Our Native Evergreen Shrubs.

TALL DECIDUOUS SHRUBS FOR SUNNY, DRY LOCATIONS

One of the most valuable of our large shrubs is Mountain Privet, *Forestiera neomexicana*. This should be better known and more commonly used. It has an erect habit with small, light green leaves which turn pale yellow in autumn and an interesting light greenish-gray bark. I like it grown near Russian-olive since its fall coloring is especially pleasing in combination with the silvered green of the "olive". *Forestiera* has numerous small yellow flowers which add interest as they appear before the leaves. Some individuals bear quantities of dark bluish berries. Mature shrubs will be six to eight

feet tall. They are of finer texture than some other large shrubs such as the plums and chokecherries, and so can be used in smaller areas. They are intricately branched with many short twigs and will stand some shearing so they are valuable for screening purposes. Young plants may be easily grown from seed or obtained by layering or dividing old shrubs.

For bright green color in a dry landscape nothing exceeds the Wafer Ash or Hoptree, *Ptelea baldwinii*. This grows quickly from seed and makes a very attractive looking shrub with glossy, compound leaves of three leaflets each, and clusters of conspicuous winged seeds. It has a slightly disagreeable odor at close range but if placed at a little distance from walks and buildings it is useful and very handsome.

The Russian-olive relatives, Silverberry, *Eleagnus commutata* and Buffalo Berry, *Shepherdia argentea*, are attractive gray-leaved shrubs. The first one rambles considerably but if you can cope with that problem it is valuable. It is particularly useful where a thicket forming growth is desired to prevent erosion. The metallic sheen of its almost white leaves contrasts nicely with its glossy dark brown bark. The Buffalo Berry with narrow, gray-green leaves and an erect, rigid habit is less inclined to spread underground. It has thorns but not such fierce ones as the Russian-olive and is useful for hedges and screens.

Our native Scrub Oak, *Quercus Gambellii*, is a shrub which some of us yearn to have on our grounds. Unfortunately it is exceedingly difficult to transplant and has not, until re-

* Foot note. Many of the shrubs mentioned in these articles are now available from the Western Evergreen Seedling Nursery and the Cottonwood Garden Shop.

cently, been grown to any extent by nurserymen. If you have years to wait you can grow it from seed. One way is to gather up a basket of leaves and leaf-mould from beneath a clump of oaks in early spring. Look this over carefully and quite likely you will find some sprouted acorns. If these are planted in a semi-shaded, protected place, covered with loose leaves and watered occasionally, they will, in the course of several years, make small shrubs. You will do well to mark the spot so as not to lose them until such time as they grow large enough to be seen. If they are to be transplanted eventually they should be undercut after the second or third year with a sharp spade. Otherwise the tap root will go on straight down. I have been told on good authority that fair sized Scrub Oaks may be successfully moved in winter if large balls of frozen soil are taken.

Service berry, *Amelanchier alnifolia*, is attractive and desirable but it is another temperamental individual, difficult to transplant. I have succeeded a few times by bringing in rooted shoots. In my Laramie garden a shrub six feet tall bloomed and bore fruit for several years. Birds and insects are fond of the sweet, juicy berries and if grown near fruit trees it should be given the same spray treatment. Its panicles of white blossoms make it showy and beautiful in early spring.

For mass, naturalistic effects in large scale planting the Choke Cherry

Prunus virginiana, and the Wild Plum, *Prunus americana*, are effective. They send up sprouts and so form thickets. Thus they are valuable for screening out unsightly views but are too aggressive for small gardens. Both are attractive in flower, the cherry blooming later than the plum and so lengthening the blooming period. They both color beautifully in autumn and provide fruit attractive to birds and to any housewife who enjoys making wild fruit preserves. I have some wild plums, bearing for the first time this year, which were grown from seed of the 1951 crop planted that fall. They were transplanted two years ago which was the first season they bloomed. This set them back a year so I think they could be expected to bear in seven or eight years from seed.

My experience is that any gardener who lives within bird-flight distance of a choke cherry bush has seedlings to spare so they should not be difficult to obtain by those who want them. They grow very rapidly from seed. Native shrubs are particularly useful to fill the dry corners outside the reach of your garden hose.

Learn the Facts — Be a Member!

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No digging ● No turning ● Simple ● Safe
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“Beautify your grounds with plants and flowers and vines. Have good gardens. Remember that everything of beauty tends to the elevation of man. Every little morning-glory whose purple blossom is thrilled by the amorous kisses of the Sun, tends to put a blossom in your heart. Do not judge the value of everything by the market reports. Every flower about a house certifies to the refinement of somebody. Every vine climbing and blossoming, tells of love and joy.”

— Robert G. Ingersoll

L. D. “LEW” HAMMER

Landscape Contractor

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? ? ? ?

Dear Eddy,

My back sounds like a squeaking door. Although this year's crop has brought the ultimate in snow fun—sledding, snowflake ice-cream, and kissing snow folks, I've shoveled so much snow my neighbors call me Snow Pilot—I pile it on the outdoor planter, pile it on the cotoneaster near the chimney, on the perennials under the eave. Is there anything I can do to eliminate shoveling snow?

Snow Pilot

Dear Snow Pilot,

Calcium chloride, a basic ingredient, plus various chemical additives will remove snow and ice in limited quantities. Distributors of the various products are quick to admit its use would be costly in removing snow greater than three to five inches deep. Sprinkled on ice or hardpacked snow these removers eat into or melt ice and snow so it drains off given areas or loosens for quick, easy shoveling. Harmless to established grass and shrubs, it eliminates slipping dangers. Sprinkle the pellets sparingly and watch the snow and ice melt. Cost at the garden shops and hardware stores ranges from \$2.25 to \$4 for 25 pounds. If you have some left from this season you'll find it useful in settling dust on tennis courts or driveways. Spread outside the greenhouse door, calcium chloride eliminates door-sticking. Aerosol ice removers are wonderful in preventing frost on windshields and even give traction to cars stuck on ice or snow.

Dear Miss Information,

News releases in recent months reveal Uncle Sam is extremely disturbed about the outflow of gold from our country. Needless to say, a parallel problem in my personal reserve has left me with limited resources for studying about my current love, gardening. Can you give me some economical suggestions for finding gardening information?

Yearn-to-Learn

Dear Yearn-to-Learn,

Don't we all have our gold-flow problems?

Libraries, bulletins and catalogs are our best printed inexpensive resources. Your county agent has many free bulletins on flower, fruit, and vegetable gardening prepared by Colorado State University. Browse in his office, the attendant will ask only the number of bulletins you choose.

Since you are a member of Botanic Gardens, borrow from the Helen Fowler Library, the largest library of its kind in our region. The Denver Public Library has an excellent collection of gardening books. Most libraries throughout the state have George Kelly's books written especially for this area. You'll find a list of valuable books attached. "How to Garden without an Aching Back" by Ruth Stout might appeal to our friend, Snow Pilot. A "way-out" organic gardener, Miss Stout is so imbued with the merits of her carefree gardening she writes, "When I die, don't dig a hole, just mulch me."

Catalogs, the gardener's dream books, are free upon request; many are

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offered to you in living color. Local nurserymen, besides giving useful hints about plant desirability and condition of growth, indicate in their booklets, plant hardiness in our region. Specialists throughout the country offer catalogs on roses, iris, lilies, perennials, even espaliered trees. Although very few catalogs need be purchased, some are price-worthy as beautiful color references for a variety of plants. Check the garden magazines at the libraries and nurserymen advertising in Green Thumb for suggestions.

Many gardeners plan their perennial borders from colored pictures. Disappointment may result if the photograph is deceptive or if the pictured plant is a choice specimen growing under ideal conditions. Have you thought of developing a mural of your garden? Draw a garden area to scale and insert plant pictures in their designated spot as in your real garden. How about using catalog pictures to enliven laundry or flower arranging room?

If you can afford a small private library begin with Kelly's book and a good gardening dictionary as Norman Taylor's "Practical Encyclopedia of Gardening." Supplement these with catalogs and your zest for learning will be satisfied for years. Find a plant in the catalog; next look it up in your reference book; associate descriptions and pictures with growing conditions. You'll soon identify plants with only a bachelor's degree in guessing. Don't fret over botanical pronunciations, soon the association of a picture and name with a living plant will set your mind flashing botanical messages. Associate *Plumbago* and its common name, leadwort, with a plumber wiping joints with lead; *pulmonaria* or lungwort—disease of the chest, its

foliage is speckled; lemon thyme with my darling *Clementine*. That's my fun combination. Distinguished botanists frown and call it awkward, they simply use a key.

Keep yearning and learning.

Dear Blossom,

Last year's tuberous begonias were little heads, much legs. What did I do wrong?

Leggy

Dear Leggy,

Perhaps you started your begonia tubers too early. Mid-March and early April starts give compact plants and better timing for outdoor planting on Memorial Day or later. The tubers, one and a half to two inches in diameter, should be planted about one half inch deep in flats containing loam, leafmold and peat. Some add well-rotted cow manure or a little bone-meal thoroughly mixed with the other ingredients. Some experts use half peat and others use one-third of each. Some include sharp sand. Tubers may be started in four-inch pots with good drainage and later shifted to larger pots to be plunged into the ground or shifted from the pots into the flower border.

Be sure the tuber is planted concave side up. Sometimes the pink growth is showing in the concave area. Place in a well lighted area of the house after the first week or ten days. Temperature should be 65 to 75 degrees.

Sometimes plants become leggy outdoors with too much shade. Filtered sunlight is best. Achieving proper light conditions is very important. Hope this is enough to get yours started.

I am ever being taught new lessons in my garden: patience and industry by my friends the birds, humility by the great trees that will long outlive me, and vigilance by the little flowers that need my constant care.—Rosaline Neish.

THIS
IS
THE
TO TIME
MAKE
YOUR GARDEN PLAN



YOU CANNOT make a good plan without a *definite* plan. Whether you are old or young and whether you have a new, unplanted area around your home or an old yard where the planting needs to be changed you cannot make a plan unless you first decide what you *want* and what you *need*. If the wants and the needs agree your task is simpler. If there is conflict between the two you will have to compromise.

So, to begin, look inward and study your tastes and your living habits. Are you the type that likes active relaxation, likes to play games? Or are you the type that craves passive relaxation—to sit in the cool of the evening and admire the garden? Do you want seclusion and how much of it, or do you want a show place for entertaining? Do you enjoy the act of gardening and get your pleasure in seeing plants grow and develop? Have you reached the stage of collecting special plants and working for special effects?

On an acre of land a mixed type of person might achieve several of these goals but Mr. Average Homeowner with his two or three lots will have to make eliminations, helped by this self-analysis of what he must have and what he can do without. Games re-

quire lawn space or a children's playground. Seclusion calls for fences and hedges. Entertainment demands patios, pools and devices for outdoor cookery. Special plants require special soils and exposures or special construction as in the case of rock gardens. The gardener who "rolls his own" has to consider his time and muscle power. The artist planner has to think of color and harmony to create a picture.

Well—when this first great decision has been reached—on to the ground. You start by making a map of your property, not just a rough sketch but a map, exact to scale: One inch equals either five, six, or eight feet as you choose but one inch equals two feet in flower beds and borders. The measurements must be made upon the ground since you cannot make a good plan by guessing distances. (You can get paper divided into little squares to aid you in this plotting of space.) Map making can be fun.

After you know your distances exactly, then advance on to the problem of what will be planted where and in what proportion to the over all space. Don't forget that you have a house present, probably a garage and may possibly want a tool house and a serv-

Membership in The Green Thumb helps you keep up-to-date in your garden and in your home.

ice area. These structures should be indicated in proper size on the map.

Now as to details, and here everyone can use the taste and imagination we have been speaking of. But, in general, it is wise to consider: Size and shape of patio (or outdoor sitting space), choice views to be accented, unpleasant features to be screened, sites for trees for shade and screening, type and height for fences, creation of interesting focal points.

In any design there are basic principles: balance, sequence, scale and proportion, unity and rhythm which

must underlie the whole in order to permit surface variations and personal tastes.

Many attempts will be necessary, no doubt, to compose your landscape plan to your satisfaction, so use tracing paper superimposed on your map, repeat and repeat and never say die!

P.S. For help in choosing plant material for Your Planting Plan based on the General Planting Plan, see next issue of The Green Thumb.

M. W. P.

by Ghostwriter C.A.B.

BOTANIC GARDENS

Membership Breakdown by Geographical Location

Denver	1200
Englewood	Approx. 250
Littleton	Approx. 225
Colorado Springs	Approx. 50
Pueblo	Approx. 30
Golden	Approx. 15
Boulder	Approx. 50
Wheat Ridge	Approx. 50
Lakewood	Approx. 50
Aurora	Approx. 25
Arvada	Approx. 40
Durango	Approx. 10

The following communities in Colorado have from 1 to 10 members:

Alamosa	Johnstown
Aspen	Lafayette
Avondale	La Junta
Basalt	Leadville
Berthoud	Longmont
Brighton	Loveland
Brush	Manitou Springs
Burlington	Morrison
Canon City	Nucla
Craig	Ouray
Derby	Parker
Durango	Platteville
Eaton	Petz
Estes Park	Rifle
Evergreen	Rocky Ford
Ft. Collins	Roggen
Ft. Lupton	Salida
Ft. Lyons	Snowmass
Ft. Morgan	Steamboat Springs
Georgetown	Sterling
Granby	Trinidad
Grand Junction	Thornton
Greeley	USAF Academy
Hayden	Victor
Holyoke	Ward
Hoyt	Wiggins
Hugo	Windsor
Idaho Springs	Westminster
Indian Hills	Woodrow

Areas outside of Colorado in which there are Green Thumb members:

ARIZONA	NEW JERSEY
Phoenix	Camden
Tucson	NEW MEXICO
CALIFORNIA	Albuquerque
Belvedere	Los Alamos
Berkeley	NEW YORK
Buena Park	Ithaca
Castro Valley	Larchmont
Coalinga	Mt. Kisco

La Jolla	Newark
Long Beach	New York City
Santa Barbara	OHIO
San Francisco	Akron
San Luis Obispo	Cincinnati
San Mateo	Cleveland
Venice	Columbus
Whittier	Lancaster
CONNECTICUT	Willoughby
Falls Village	Wooster
Greenwich	Zanesville
Wallingford	OKLAHOMA
FLORIDA	Stillwater
Pompano Beach	Tulsa
St. Petersburg	OREGON
Ft. Myers	Keno
ILLINOIS	PENNSYLVANIA
Chicago	Bryn Athyn
Evanston	Emmaus
Glenview	Harrisburg
Lisle	Rosemont
River Forest	SOUTH DAKOTA
Urbana	Dell Rapids
Villa Park	TEXAS
IOWA	San Antonio
Des Moines	VIRGINIA
KANSAS	Lynchburg
Wichita	Rapidan
St. Francis	WASHINGTON, D.C.
LOUISIANA	WASHINGTON
New Orleans	Friday Harbor
MAINE	Seattle
Bangor	WEST VIRGINIA
MASSACHUSETTS	Morgantown
Boston	WISCONSIN
Jamaica Plains	Appleton
MICHIGAN	Madison
Muskegon	Milwaukee
MINNESOTA	Waushee
St. Paul	WYOMING
MISSOURI	Casper
Kansas City	Cheyenne
St. Louis	Gillette
Webster Groves	Laramie
MONTANA	Rawlins
Bozeman	Yellowstone Park
NEBRASKA	CANADA
Fremont	Morden, Man.
Lincoln	Winnipeg
Hay Springs	ENGLAND
Scottsbluff	Southampton
NEW HAMPSHIRE	JAPAN
Portsmouth	Kobe

POST HOLIDAY CARE

FOR

HOUSE PLANTS

HELEN MARSH ZEINER



NOW that the busy holiday season is past, many indoor gardeners are discovering that their house plants need some special attention. Many plants were neglected during the holiday rush, when the owner was too busy to carry out a regular schedule of care. Unless erratic watering and general neglect has caused excessive leaf drop or root damage, these plants can be quickly rejuvenated by a regular watering program and the use of a little fertilizer. Remember the old rules: check your plants for dryness every day, watering only those which you feel will be too dry before the next watering period. Thoroughly saturate the soil when you do water. Plants need to dry out between waterings, but not to the extent that the roots can be damaged. Plants need fertilizer, too, and an application of a commercial fertilizer prepared according to the manufacturer's directions and applied once a month will be beneficial. It is often advisable to prepare a solution about half the recommended strength, and apply this about every two weeks. Neglected plants respond well to this treatment.

Plants which have lost their lower leaves and are no longer attractive as a result, may be cut off and re-rooted in moist sand, vermiculite, or perlite.

Many plants may also be re-rooted in water—but in this case, pot them as soon as roots appear, since roots which develop in water are not well-suited to growth in soil.

Then there are the special Christmas plants, which came into the home looking their very best, but by this time may need some special attention if they are to continue to be a satisfaction.

Surely the poinsettia is the most popular of all Christmas plants, yet it can be a disappointment as it begins to drop its leaves. It can be considered as a cut flower and discarded when no longer attractive, or it can be maintained and restored to an attractive plant which may or may not bloom again. Poinsettias like lots of water and should never be permitted to wilt. They also like a sunny, warm location. They resent drafts and will not tolerate poor drainage. It is quite natural for the leaves to drop late in the winter. When the leaves begin to drop, let the poinsettia rest by placing it in the basement and watering it only enough to keep it from shriveling. About the middle of April, cut the top back to three or four inches, and repot the plant in a good loamy soil with plenty of drainage. Bring the pot to a warm, sunny location and keep well-

watered. When danger of frost is past, sink the pot in the garden for the summer. Early in the autumn, trim any scraggly branches, bring indoors to a sunny, draft-free location, give it plenty of water and fertilize well.

Poinsettias are "short-day" plants; that is, they will not form flower buds if they receive more than twelve hours of light. In the home, light from a reading lamp may extend the light period beyond this limit—a reason why many poinsettias do not bloom in the home. To overcome this, the plant may be covered with a dark cloth or removed to an unlighted room. Since flower buds are formed in early October, day length should be shortened at this time.

Another popular Christmas plant is the Christmas pepper. These cheery little plants like to be cool and moist, but must have sun—a combination not always easy to attain. They like humidity, so frequent spraying of the leaves is desirable. If kept too hot or too dry, the leaves and fruit may drop. If this happens, rest the

plant until danger of frost is past, and then sink the pots in the garden for the summer. Young plants may be started from seed taken from the pods of your Christmas plant. Sow in May or June in small pots, repotting as they outgrow the pot. It is advisable to keep these young plants outdoors during the summer, bringing them in early in September.

The Jerusalem cherry, a related plant, requires about the same care as the Christmas pepper. It is rather susceptible to drafts and drying out, and may drop its leaves and fruit more readily than the pepper. It is normal for it to drop its leaves and fruit in late February or March, however. It may then be cut back, rested by decreasing the water supply, and when danger of frost is past planted outdoors for the summer. Jerusalem cherry may also be grown from seeds. These may be started in small pots in January or February, repotted occasionally to larger pots, kept outdoors over the summer, brought indoors early in September and kept in a cool, sunny location.

MIDWESTERN SHADE TREE CONFERENCE

The 16th annual meeting of the Midwestern Chapter, National Shade Tree Conference, will be held February 15-17, 1961, at the LaSalle Hotel, Chicago, Illinois.

The convention, which is open to all who wish to attend, will start with registration at 8:30 a.m., Wednesday, February 15.

Various aspects of shade tree care will be discussed, and a question and answer period will follow the presentation of each paper on the program. Tools and supplies used in arboricultural work will be on display throughout the convention.

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IF IT'S PRIVACY YOU WANT - - - -

M. WALTER PESMAN

HOW often we hear the question: "What can I do to get seclusion in my garden?" and the answer: "Why not plant a row of lilacs?"

It seems so very simple! If only it were, this row of lilacs would be the solution for ever so many new home owners in this region.

Block after block of new bleak subdivisions are being occupied by newcomers to this region. Long before the last payments are made, husband and wife are yearning for at least a bit of privacy!

When a nursery salesman calls while the mood is on, it takes little ingenuity on his part to come back with an order for plant material. Trees and shrubs seem to be the answer to this hungry for an outdoor living room.

Good and well. The home-owner will probably not be sorry that he made the purchase; trees and shrubs are needed! And yet—

When leaves come tumbling down and the bare branches show innumerable openings between them—the vaunted privacy is again non-existent. Must we then be satisfied with seclusion in summertime only? Evergreens are part of the solution to be sure.

It is possible to plant a hedge of junipers or of spruce, or even of fire-thorn to fill the need. In reality the possibility is rare for the new home owner, who has scraped together all the pennies he had for the first payment, and who can barely manage to keep up the monthly remittance on refrigerator, T.V. and dishwasher. Evergreens are among the more expensive items of nursery stock.

In such a dilemma it will pay us to do some constructive thinking, painful as the process may be. (It is so much easier to depend on the argu-

ments offered by salesmen of all sorts of things.)

Luckily, this method of thinking is quite simple. It is based on the principle that we look in straight lines, and that anything interrupting this vision makes the object beyond that interruption invisible.

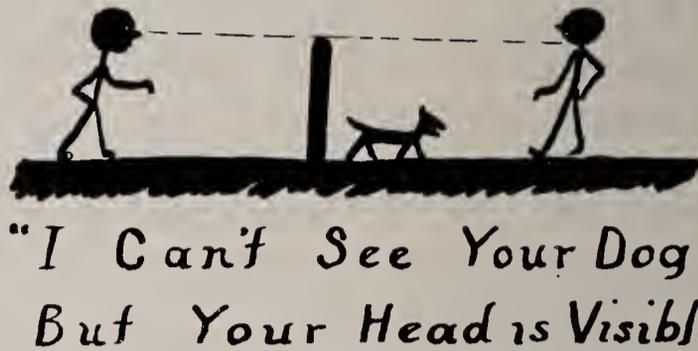
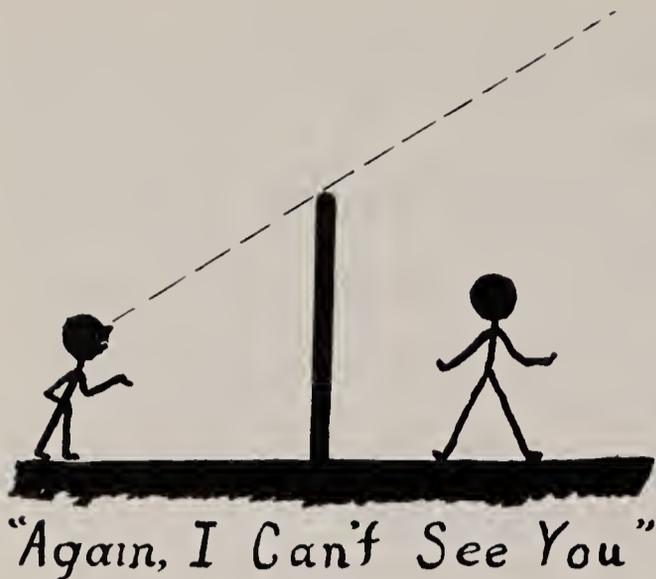
To get privacy then in any particular spot, we need merely place an obstruction between ourselves and the people from whom we want privacy. The simple sketches below illustrate the point.

Even without a fence we get seclusion on a high point as long as the slope down is fairly abrupt. In such a spot even a very low fence is adequate.



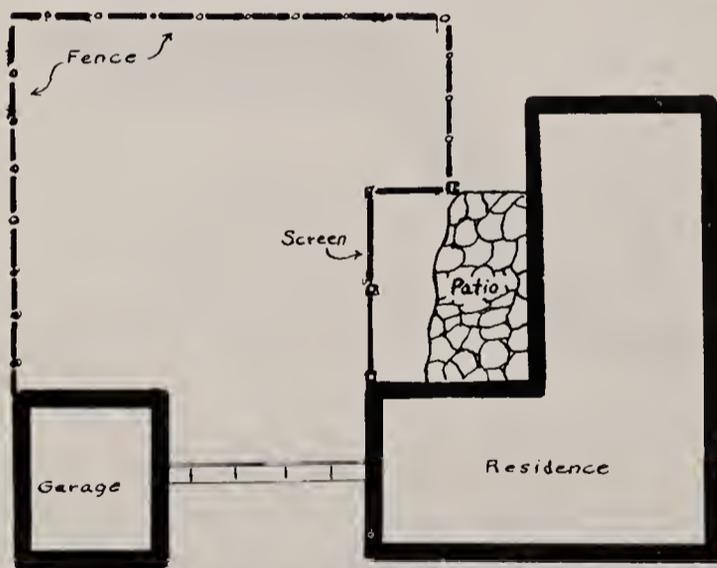
The following two sketches show that a screen that is eye-high screens us effectively, unless there are openings in the screen—as there would be in a lilac hedge in winter, or an open-mesh fence at any time.

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So far so good. To test the principle in your own place, just set up a six-foot pole to represent a tight fence and place it, where you want to provide privacy.

The following sketch shows a typical rear garden and a patio on which we want seclusion. Notice how a screen close in does just the same thing as a fence along the alley and neighbor's property. We can save a great deal of expense, merely by trying out in which location a screen will be effective.



A few feet of screen close in will give as much privacy as sixty feet of fence beyond.

SK 6-0789

JOHN VAN WYK
LANDSCAPING

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The main lesson we can draw from this very simple illustration is not to be afraid of placing a screen at odd locations if necessary.

We might as well admit to ourselves that the whole idea of a screen has barely penetrated to us. Until recently we could only conceive of a boundary fence as giving us privacy. Keeping animals and people out bodily seemed synonymous with keeping them out visually. Now we are using good common sense. There might even be cases where a screen can be put "on stilts" if it provides seclusion that way.

Just as much common sense is needed in the choice of a screen or fence. Luckily we have a number of types to choose from.

For privacy the *open-wire fence* is just about useless; it is little better than the barb-wire fence of farms. "Oh, but I intend to plant sweet peas on it." How much can you fool yourself?

A little better is the *picket fence* of colonial days. It is excellent for the promotion of neighbors' gossip—not much else. Of course, we must admit it is quite decorative.

A solid high *board fence* gives absolute privacy but is apt to look forbidding, monotonous and cheerless unless carefully designed.

Almost as unattractive is the so-called "*grape-stake*" fence made out of rustic saplings or spilt redwood, and tied together.

Much in vogue recently are the *basket-weave fences*; they give privacy and are attractive for the play of light and shadow.

Board-and-board fences, also called shadow fences, and popular in Japan, have boards nailed alternately on one side and the other; thus they give almost complete privacy, but admit air circulation.

Louver fences are built with boards at an angle to the direction of the fence, thus furnishing seclusion in all directions except the one to which the boards are slanted. Good and attractive.

Lately *plastic screens* have come in the market, translucent and of various colors. They are being used more and more. If its privacy you want, here it is.

What does all this add up to? The Green Thumb reader should make up his mind that his particular problem can best be solved by himself. Common sense must guide him.

Different fence companies (see the ads) handle the various types of fences and screens, and nurseries handle live plant materials. Should you want to get more information and have a good time reading up on the matter, consult "How to Build Fences and Gates," a Sunset book by Lane Publishing Co. It is in the library of Botanic Gardens House, together with many, many other books on the subject.

Again, if it is privacy you want—do your own thinking and you'll come up with a solution that will fit *your conditions*.

HERE IS HOW TO PRUNE GRAPE VINES

MORAS L. SHUBERT

1. Prune them in late January or early February.
2. Cut out the spindly canes and those that are too robust.
3. Save as fruiting canes, those that are about one-fourth inch in diameter, and have good buds about every 4 to 6 inches.
4. For best fruit production, save only about a total of 60 to 80 buds per vine, depending upon its vigor and age.
5. If a more decorative vine is wanted, such as an espalier or arbor vine, try to keep the total number of buds between 70 and 130.
6. When pruning is completed, fasten the vines loosely (to permit new growth without choking the stem). Use stout string or "Twistems."

Here are two vines that show before and after pruning appearances. The one which has only four fruiting canes,

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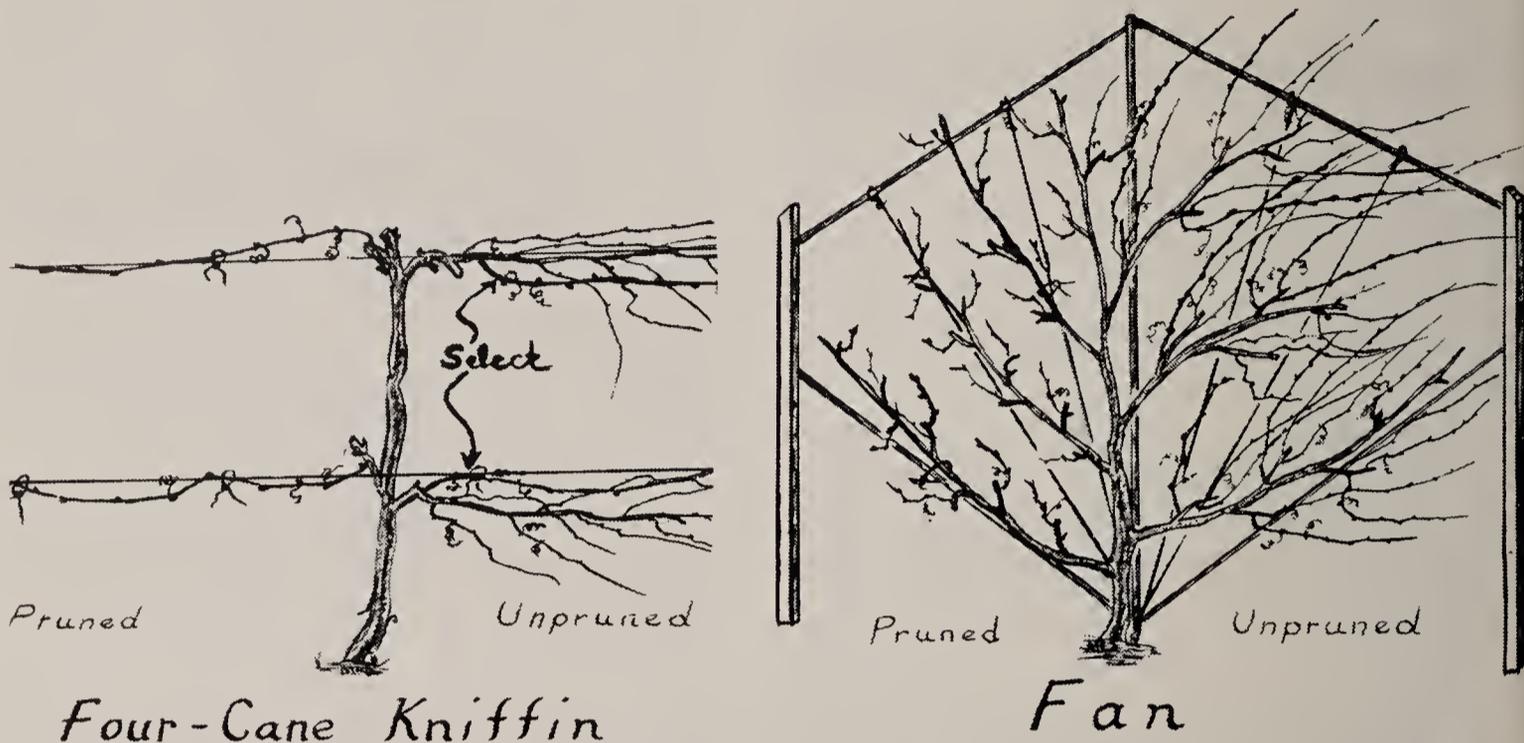
1321 15th Street

MAin 3-6223

Denver, Colorado

each with 10 to 20 buds on it, is pruned in the "four-cane Kniffin" system, the other is a fan or espalier form of pruning. If the Kniffin system is used, which gives excellent fruit production, the lower canes should be

24 to 30 inches from the ground and the upper two should be 48 to 60 inches high. When the buds start to swell in the spring give each vine about one-half pound of 5-10-5 fertilizer and water it in well.



THOUGHT WHILE SHOVELING SNOW

I'm going to raise those stepping stones as soon as the snow melts: it is just too difficult to shave the grass in between with every shovel-full of snow!

Take a *snapshot* of your garden right *after a snowstorm*; if it shows up all right in black-and-white, its design is according to Hoyle. If not, there is something wrong with its third dimension. This is the time to re-plan it!

WINTERKILLING in Colorado is usually a question of drying up in early spring. Protect trunks and branches from the hot winter sun.

FUNGUS trouble of the lawn may be increased by snow being piled up too high and too long in one spot. There is such a thing as lawn being suffocated in winter. Give it air as soon as possible!

WROUGHT-IRON ornaments can do much to "dramatize" the bare surfaces of garage or near the front door. If you are artistic you can design your own, "contemporaneous" or otherwise.

CHRISTMAS BOUGHS can be used for sprucing up bare winter surfaces of flower boxes or flower borders. Incidentally, they make a good mulch, — not too tight, not too soggy.

EARLY-BLOOMING shrubs can be cut now and placed in water inside, to furnish these greatly-welcomed spring flowers. Cornelian cherry (*Cornus mas*) is particularly good for the purpose.

Watch for Oyster-shell Scale on your lilacs. While spraying is good, you may be able to control some of it by merely brushing it off with a wire brush or burlap. Simple, but rather effective.

M. W. P.

Why not interest others in the Denver Botanic Gardens?

WINTER

GARDENING

HERBERT C. GUNDELL



GARDENING can be a twelve-months-a-year activity for those who want to make it that. A great many people enjoy gardening in season but would rather turn their fancy toward other winter-time occupations. They certainly have a right to do this. But there are just a few of us, and I hope you are among them, who like to keep their bones and muscles limbered up, their fingers brown, and their thumbs an emerald green. For those of us, winter gardening is perhaps not as exciting an outdoor activity, but one which brings us into the fresh air of our beautiful high plains and mountain area, and lets us soak up some of the winter sunshine our climate provides for us so abundantly.

Among the worthwhile activities for winter gardening is a periodic check-up of soil moisture, especially around our newly planted trees and shrubs, as well as our evergreens. Evergreens in particular have a tendency to require added moisture, more so than most other plants, because, on warm winter days or windy ones (and we have some of each frequently), they will transpire almost as much of their root-absorbed moisture as they would on a nice day in September or in April.

Young transplanted shade, ornamental, and fruit trees also need this extra water attention during the first winter, when their root system is usually somewhat reduced after one growing season, and the "take" is not as extensive as it might be. There are many good ways of watering these plants during the winter months. One of the best and easiest is the use of a root-waterer that allows providing water at a 24 to 36 inch depth in the soil so that the reservoir of moisture at that level is filled up adequately to carry the plants efficiently through the remainder of the winter.

Have you ever tried your own propagation of shrubs? This is a good winter activity. The short cuttings are taken usually during the month of February, bundled and heeled in the soil for callusing. The selection of cuttings should be made from year-old growth of an established shrub in your garden—which would require some pruning anyhow. The individual sections should be cut into lengths of about ten inches, preferably containing one bud at the lower end and one at the upper end. Insert the bundles of cuttings upside down in the soil, and leave them there until, perhaps, the last

week of April or first week in May. Make certain that the ground around these cuttings is not too dry, nor should it be soggy wet. Spirea, cotoneaster, dogwood, mock orange, and many other shrubs are suitable for this.

Any time after January first is a good time to work over your grapes. Naturally, it is important that you determine in your own mind what the purpose of your grape planting is. If it is for fruit production only, then a severe pruning is necessary to maintain productivity of the plant each year. If, however, your major purpose is to produce shade on an arbor, or on a similar structure in the garden, then you're not inclined to prune heavily, you would only remove extra growth that interferes with normal traffic and circulation in the garden, and you would, of course, accept what production of fruit you would receive from this arbor graciously as a secondary return for your good garden culture.

Mid-Winter is also an excellent time to subject all your garden equipment and tools to a thorough inventory and check-up. If a piece of equipment is no longer adequately doing the job, or if it is somewhat beyond repair because of extensive use over a period of years, provisions should be made for an early replacement. Don't start the new garden season in spring with dull, rusty or otherwise partially "lame" garden tools and equipment. If you have a hand lawnmower that is doing a good job for you, all you need to do is check the adjustment on it and oil the moving parts. With a power mower it is necessary to give the engine a thorough check-up, a change of oil, and perhaps a cleaning out of the fuel tank so that any condensation that may have built up in this during the fall and early winter months is not pulled through the carburetor of the engine to cause engine difficulties in spring. Mid-winter is a good time to take your power

mower to a licensed and qualified repair shop for check-up and adjustment, as well as possible overhaul. The serviceability of your mechanical garden equipment is subject to upkeep like your car, which runs better if it is given an occasional tune-up and lubrication. The principle is the same. Also, if some of your garden hoses require new fittings and fixtures, or mending, the months of February and March, prior to outdoor use, are ideal to accomplish this task. There are always enough warm days during mid-winter when such equipment can be checked, and operated briefly to determine the general condition and the need for repair.

While you're outside you might also check some of your vegetable and annual flower gardens for the condition of the soil. If the soil is not frozen, and frequently our soils do not freeze up very much in the more exposed areas, then a spading of the area in which you cultivate vegetables and flowers would be very useful and helpful to improve your soil condition for the coming growing season. If you have some extra compost or leaves, or even some animal fertilizer available, you may distribute this over the area to be spaded beforehand, and then turn this material under. The more often you turn a soil area, six inches deep or deeper, the better your soil structure and qualities will get. So, two or three spadings of a given area between October and March are highly desirable.

There is also some work to be done at the spot where you store your non-hardy perennial flowers. Your dahlias, cannas, tuberous begonias, and gladioli should be given the once-over occasionally to see that they are still in good condition and not too warm or dry. If your dahlias get too dry, they will shrivel and you will lose a percentage of them; so if you keep them in peat or similar material, moisten this material from time to time so that the

roots can absorb some moisture. If these are stored in the crawler space under the house, or in a root cellar, turn them occasionally so that if you have any disease build-up, you can eliminate the source of infestation early.

Then, for evenings in the winter time, there is much activity by the fireplace. You could be ordering your new roses, at least glance at the new, delightful picture catalogues that are inviting you to purchase the new ones; you could be making a list of activities and when you would like to tackle them in the garden; you could just list on a slip of paper some problems that have bothered you this past gar-

dening season, and on occasion, tap someone for the answer to your question when you have the opportunity. You could be doing a little design work for your arrangement of annual and perennial gardens this coming year, and you could, even, be reading a good book on one of many gardening subjects that will keep your mind and your heart in the garden through the snowy and wintry days until nature awakens again outdoors in the mile-high country.

Editor's note: See also our special articles on Vine Care, Garden Planning, House Plants, and Fences, on pp. 17-23.



TRAINING SCHOOL FOR PARK EMPLOYEES

Significant trends may often have inconspicuous beginnings. The Denver Parks Department, on November 23, 1960 started a training school for Gardener-Florists in connection with the Opportunity School. Thus a dream of Dave Abbott and James Bible became a reality.

It cannot help but result in a corps of capable park workers for Denver, a corps trained practically in park activities and basically in underlying horticultural and botanical knowledge. It ties in with Denver's notable career service and will be an intrinsic part of it. Our Denver Parks will be the gainers.

About three dozen of the most promising apprentices and foremen were selected for this course. It is taught by a well-known authority, M. Walter Pesman, landscape architect, horticulturist, teacher and writer; it will continue for sixteen consecutive weeks.

Among the topics studied are growth and culture of plants, types and characteristics of Denver soils, plant diseases, identification of trees, shrubs and flowering plants, and the fundamentals of landscape planning.

Classes are held in the City Park Greenhouses, Wednesday afternoons; they are already creating considerable interest.

NATIONAL AND INTERNATIONAL LANDSCAPE ARCHITECTS WILL BE ENTERTAINED BY COLORADO, JULY 10 TO 12, 1961

"While this part of the country, as a rule, is not in its nature open to the cultivation of gardens, its wild flora is remarkable enough to deserve special treatment." Thus a garden book in 1924.

Next July a number of experts will check up for themselves, how true (?) this statement is in 1961. The American Society of Landscape Architects will hold its 62nd Annual Meeting in Boulder, being entertained by the Rocky Mountain Chapter. More later.



The Jewels of Opar (Talinum paniculatum)

RELEASE BY GEO. W. PARK SEED CO.

JEWELS OF OPAR
(*Talinum paniculatum*)

While not new to horticulture, this lovely item does not seem to be generally available and our trial ground planting of it was so impressive and so attractive from the very beginning of the season until fall freezes killed it out that we decided it should be brought to the attention of the gardening public. It is easily grown, may be sown where it is to bloom or started indoors and transplanted to its permanent location. The seed germinates readily, the plants grow thriftily, withstand the summer heat, even in the moist humid conditions of the southeast, thriving and becoming more beautiful with each passing week.

The foliage is bright, deep waxy green, growing about a foot high and forming a delightful setting for the airy paniced stems which rise another foot and a half above the foliage. Great multitudes of small cameo pink flowers are produced. The flowers open in

early afternoon and are so numerous they give the plant an ethereal quality; because these flowers are so small and numerous, it seems as though you are looking into a pink haze when looking through the top of the plant. The next morning the flowers are all closed but each tip of the many branched stem has a ruby colored little seed ball so that the effect in the morning is entirely different though no less beautiful than it is in the afternoon being that of a ruby colored haze in the morning and a pink haze in the afternoon.

These stems make delightful fillers for cut flower arrangements where buds open into new flowers each afternoon for a week or more. They are nice to dry for winter bouquets too. All this, in addition to the beautiful effect they give in the garden.

We feel that this is a very choice flower which everyone who grows it will enjoy. It seems to have no insect or disease enemies and is so easily grown as to be almost fool-proof.



MRS. JAMES J. WARING places a symbolic "crown" of carnations on the head of Mrs. Giles F. Filley in recognition of the work of all the supervisors of the garden program last year. The shelter was a gift of Mrs. James J. Waring.

DEDICATION OF CHILDREN'S SHELTER

VELLA CONRAD

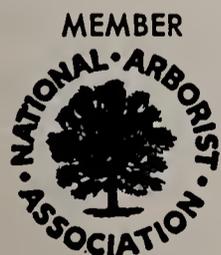
The Botanic Gardens Children's Shelter was dedicated on December 7th at 4 p.m. Piles of snow and subfreezing weather moved the ceremonies inside Botanic Gardens House.

The newly completed Shelter across York Street was designed by the firm of Victor Hornbein and Edward C. White, Jr. It provides a covered patio, garage, space for storing garden tools and restrooms.

The Shelter was dedicated in a brief talk by Dr. Jack Durrance, a Trustee of Botanic Gardens, who has been active in the Children's Garden Program.

Dr. Durrance emphasized the role of the Gardens in educating the youth of Denver. He spoke of the plans for next year to enlarge the program to include 120 children. Participating in the program next year will be Girl Scouts, Boy Scouts, Camp Fire Girls, and Highlander Boys.

"This Shelter is dedicated in the name of the Botanic Gardens and the



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City and County of Denver to the children of Denver", said Dr. Durrance in concluding.

The Shelter was a gift of Mrs. James J. Waring, who said: "The only thanks I want is an enthusiastic response from the children to our program — and this I know we shall have."

Mrs. Waring then placed a symbolic "crown" of carnations on the head of Mrs. Giles F. Filley in recognition of the work of all the supervisors of the garden program last year. Mrs. Filley was coordinator of the supervisors. Lawrence A. Long, President of the Botanic Gardens, presided at the ceremonies. The city was represented by Willard N. Greim, Manager of Parks and Recreation, and Dave Abbott, Director of Parks. Representing the Junior Red Cross was Miss Madelyn Howley, Executive Director. Miss Cindy Chatman, Director of Programs and Public Relations for the Girl Scouts, and Bruce Kearns, District Executive of the Boy Scouts, were special guests.

The dedication was attended by approximately fifty people including many trustees and a number of the children who participated in the program last year.

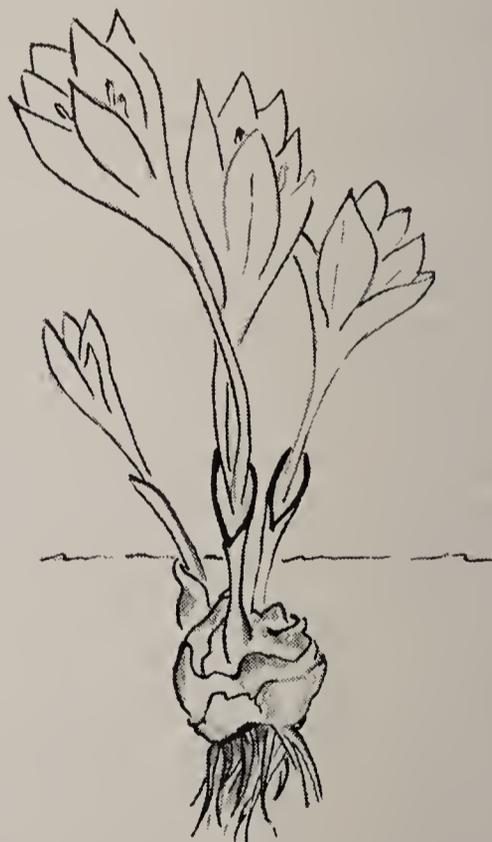
Following the ceremonies, tea was served in the dining room. The tea was arranged by the Botanic Garden Juniors of which Mrs. MacIntosh Brown is President.



OF AUTUMN-FLOWERING COLCHICUM

(Plant This Spring)

Our autumn-flowering Colchicum is the source of a very valuable drug, Colchicine, most widely used for treating gout. The drug is obtained both from the seeds and the bulbs of this lovely flower. The extract was discovered by the Greek physician, Alexander of Tralles, in 550 A.D. The drug was introduced to this country by Benjamin Franklin who had a very bad time with gout and who had heard of colchicine treatment during his stay in France.



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OPEN SUNDAYS DURING PLANTING SEASON

LONG NIGHTS AND PHYTOCHROME

M. WALTER PESMAN

We are getting so impressed lately by space science that we can only become enthusiastic about such questions as when man will land on the moon, or will place a bus station in orbit from where we can take a trip through the universe.

In the meantime, plant scientists are doggedly going ahead with investigations on the miracles of photosynthesis, of gibberellin, of colchicine and the fabulous creation of new plants.

While we are enduring our long winter nights—no daylight saving!—we might interest ourselves in some new discoveries that are directly related to the length of the night. They are fascinating.

Did you realize that flowering of plants depends on the length of the night? As simple as that!

Chrysanthemums just will not start blooming until nights get long in late summer and fall. Soy-beans and late corn are in the same group. So is the lowly cocklebur, which is often used for this experimentation. On the other hand, barley, wheat, and many other small grains must have short nights in early summer for blooming.

This discovery of *photoperiodism* as a control of flowering was made in 1918 by Garner and Allard who suggested also that bird migration is determined photoperiodically.

Recently two scientists of the Agricultural Research Service at Beltsville, Md., have pointed out that a blue or

bluish-green pigment, now called *phytochrome*, is the active principle of this photoperiodism and related plant-growth phenomena controlled by light. It comes in two forms of different wave-lengths; the higher wave-length form changes in darkness to the inactive form of lower wave-length (660 mu-mu).

Phytochrome is present to the extent of about one part in 10 million in many plant tissues.

An article in *SCIENCE*, October 28, '60, describes in detail, how phytochrome was detected by the spectroscopic method, and hints at further factors that influence flowering of long-night and short-night plants. One of them is a rhythmic "time sensing" by living organisms. Temperature changes also influence many photo-periodic aspects of plant growth. It is known, for instance, that our brilliant colors of petunias are directly related to cool nights. The production of the plant pigment anthocyanin is connected with light and temperature.

Here, as in many aspects of science, if not all, the question is raised by many so-called "practical" people: "What good is this knowledge of phytochrome?" Who can tell?

Impressed as we are with the all-important impact of electricity in our mode of living, would we ask the similar question: "What good was Ben Franklin's tinkering with a key and kite in an electric thunderstorm?"

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COMPOSTING

MRS. JOHN SCOTT

We used to live and learn. Now, we plan and progress. Such is the spirit of the Colorado Garden Show (Mar. 26-April 2) which is adding a flower show to its attractions this year. Anyone may enter. That is, anyone who picks up an advance entry blank at 909 York Street, home of Denver Botanic Gardens.

Amazing, really, how in a few months Denver Botanic Gardens has become the recognized hub of all Gardenwheels, big or little, organized or individual, amateur or professional. Not in Denver alone, as the name implies, but in the area, the state, and yes, the United States. Denver Botanic Gardens with its many magnetic tenets is spading more and more ground. Are we, as Federated Gardeners, going to get in the groove, and pitch-in a few pennies toward horticulture, and the other cultures? All right. Then, convert 500 of those coppers into a membership in the Denver Botanic Gardens and get *The Green Thumb magazine* for a whole year as a bonus. A final "why?" Because this publication is going to have what you want, when you wish it—timeliness.

Returning us to a "Preview of Spring", the theme of the competitive flower show to be staged in the Stockyards Stadium. Two classes requiring your immediate action, in the Open Flower Market, or horticulture section, are the potted plants and dish gardens.

The pot posies are to be shown in a group, not exceeding five, and to have been under the watering and watching of the exhibitor three months or more. The Flower Show Committee (Mesdames George Kelly, E. D. Honnen, Jess Gibson and Mr. Lee Ashley) are more lenient with the dish gardens, permitting you to transplant them into a container within thirty days of the entry date.

What to grow to show? Leave the usual, run-of-the-market indoor plant at home on its sill, as rarity is one of the factors on which a specimen potted plant is judged. Maturity is another must, so that eliminates the seedlings, slips and starts. Cultural perfection, or how it has been grown, including freedom from disease and insects scores high, whether the scale of points is from a plant society (African Violet, Begonia, Cactus and Succulent, Fern, Gloxinia, Herbs, Orchid, etc.) or National Council's hand book which states: "Potted plants must have clean foliage and be symmetrical and well formed by giving them a quarter turn daily. . . They should be in a clean container (pottery or prettied-up not necessary. Ed.) in scale with the size of the plant. The plant must be well groomed; no seed-pods; no wilted flowers; no damaged foliage nor broken stems, and no props which had been used to encourage symmetrical form." Whether or not to polish foliage is a debated point; proceed at your own risk of a ribbon.

Some houseplant authorities include: Mrs. Fred Shortt, Boulder; Mrs. Glenn Clayton, Englewood; Dr. Helen M. Zeiner; Dr. John Coryell and Herbert Gundell, all of Denver.

The dish garden container is not to exceed 24 inches in any dimension (width, height, depth) or be less than ten inches. "A dish garden is a planter without a drain" according to Ernesta Drinker Ballard, in *Garden in Your House*. Montague Free, *All About House Plants*, in referring to dish gardens says: "They may be an idealization in miniature of a natural scene in woods, bog, swamp or open meadow; a section of a garden scene; a reproduction of a desert landscape; a model of a formalized garden. . ." For accessories, Mr. Free suggests: small rocks, especially those with lichens growing on them, pieces of bark or dead branches;

colored pebbles, shells, small figures and other purchased pieces.

Window Sill Gardening, James Underwood Crockett, thinks people don't water properly. "Do not try to water a dish garden by sprinkling moisture on its surface. Submerge the entire dish garden gently under water in a pail or basin until all air bubbles cease rising. Then lift the garden out, and set it on its side for twenty minutes or so to let the excess moisture drain out of the soil." *The Book of Planters*, Robert Scharff, suggests some soil aid. He recommends a layer of gravel, a layer of charcoal, and a layer of peat moss or vermiculite, with additional soil up to within one half inch of the container's rim. He likes the soil to have mountains and valleys and rock formations. Trees, he says, are the first plant problem. The dwarf Irish juniper takes 15 years to attain 15 inches. All plants should have as much variety as possible in form, color, type of foliage and flowering time.

The above authors (books at Denver Botanic Gardens) give suitable plant material lists, and enlarge on tray gardening, the submerged or aquatic garden, terrariums or Wardian cases, bottle gardens, and other close cousins. Mrs. Joseph Esterman, Denver is on the speaker's list prepared by our state program and slides chairman, Mrs. R. E. Wright. Another authority on dish gardens is Mrs. Olive Peabody, Denver, who had an interesting article and picture captioned "Dish Gardening is Fun" in *Horticulture* recently.

The flower arrangement section is challenging, too, calling for designs in niches, on pedestals, accompanying paintings or pictures depicting Spring and Holiday Tables. There's a section for dried and artificial materials, featuring plaques and ornaments (good fireside hobby before the bulbs bloom) artificial arrangements of flowers, fruits or foliages to be shown in a frame on a shelf; and hanging baskets of blooming artificial material. There's

much more entry-wise, and rule-wise. One requirement is that lists of plant materials used in all classes must accompany entry. This is surely an added way of educating the public and should be used in more shows.

Speaking of education, the Adult Education Division of Englewood and Loretta Heights College is offering classes in Flower Arranging in eight and ten week courses. The first or exploratory class aims to further art appreciation in general and floral artistry in particular; stimulate interest in gardening; broaden the vocabulary; promote more hobbies; introduce new friends; assist in flower show interpretation; beautify home, church and club surroundings and be fun.

Another class in floral decor lives up to its name by teaching what to put where, for instance, the mantel, the coffee table, the piano, and arrangements for all the rooms from bar (coke) to bath. The period pieces are covered from Classical Greece down to modern—abstract. Also how to use potted house plants in designs, without unpotting them.

While the men have been interested in these courses, they are more enthusiastic about a class called "Growing for Showing". This suggests what to plant around the home, in the home, and away from home — church, flower shows, corsages.

The classes at Loretta Heights are on Monday evenings and Dr. Earl Bach at WE 6-3423, Ext. 40 will answer any questions. While at Englewood, the classes are on Wednesday and Thursday evenings, and Mr. Calvin Orr, SU 1-7881 dispenses the information.

Some clubs are sending students to school to bring back the lesson to them. This is especially helpful for new clubs such as Nature's Novices (Mrs. Clarence Dreiling, president); Patio Planters (Mrs. Donald Cook); Sow and Grow (Mrs. L. C. Girard)

and Valley Vista (Mrs. Thomas Brook).

Now a report on clubs and corsages: from Mrs. John Sobiella, State Director. She has been called for talks before several church groups including Methodist, Littleton, and First Christian Reform, Denver. Mrs. Sobiella says there are eight active corsage clubs in the state, and several more in the making. In Littleton, Petal Twirlers, with Mrs. D. R. Dickerson, leader; Perky Posy, Mrs. Howard

Smith; Fleur Petite, Mrs. William J. Griffey; (The Fleurs Petites are from Miraflores) and Mrs. Sobiella's Group, the Floral Benders. Mrs. Margaret Clapton of Baseline, Boulder leads a club. Mrs. Carl Ferguson directs Mile-Hi Corsage Club. Mrs. Felix Moody has a club in Denver, too. Another group is supervised by Mrs. Marian Thurow, Hayden.

A corsage to you for supporting *The Green Thumb*.



Orchids for Everyone

THE DENVER ORCHID SOCIETY

The highlight of the 1960 activities of the Denver Orchid Society was the orchid show held at Botanic Gardens House on October 8 and 9. Approximately 300 blooming plants and blossoms were displayed by members for the enjoyment of the public. The interest of Denverites in flowers, and particularly orchids, was demonstrated by the fact that nearly two thousand persons attended the show. The need for an adequate display hall for the Botanic Gardens was demonstrated by the long line of people slowly inching past the display.

The Denver Orchid Society was organized in 1951 and now consists of 58 members, whose orchid-growing facilities range from window-sill installations to glass greenhouses with automatically controlled heating, cooling, and humidifying equipment. Members vary in experience from raw beginners to men such as Mr. B. Walter Slagle, one of the founding members, who is chairman of the *American Orchid Society* and a world-recognized authority on orchids.

The Society meets in Botanic Gardens House at 7:45 p.m. on the first Thursday of each month. Membership is by invitation, and persons interested in the culture and breeding of orchids are cordially invited to attend any meeting. A number of interesting programs and activities are planned for the coming year, including tours of members' greenhouses, as well as another show at a time and place yet to be determined.

Mr. Franklin N. McClelland, 1643 Monaco Parkway, is president of the Society and further information may be obtained by either writing or calling him.

NEW AND OLD BOOKS ON GARDENING

TO BE READ ON LONG WINTER EVENINGS

HOW TO HAVE GOOD GARDENS
IN THE SUNSHINE STATES, by
George W. Kelley. Denver, Colo-
rado, Smith-Brooks Printing Com-
pany, 1957, \$3.00.

GARDEN IDEAS AND PROJECTS,
by Richard D. Whittemore. Gar-
den City, New York, Doubleday,
1959. \$3.95.

EXOTICA, by Alfred Byrd Graf.
Rutherford, New Jersey, Roehrs,
1959. \$22.00.

THE IRIS, by Leslie N. Cave. New
York, St. Martin's Press, 1959.
\$7.50.

IRIS FOR EVERY GARDEN, by
Sydney B. Mitchell. New York,
Barrows, 1960. \$4.95.

HOW YOU CAN GROW BEAUTI-
FUL ROSES, by Flower Grower.
New York, Arco, 1959. \$2.50.

ORCHIDS FOR HOME AND GAR-
DEN, by T. A. Fennell. New York,
Rinehart, 1959. \$3.95.

THE GARDENERS WORLD, by Jo-
seph Wood Krutch. New York, Put-
nam, 1959. \$7.95.

DISEASES AND PESTS OF ORNA-

MENTAL PLANTS, by Pascal P.
Pirone, et. al., New York, Ronald,
1960. \$10.00.

BOTANY FOR GARDENERS, by
Harold William Rickett. New York,
Macmillan, 1957. \$4.50.

PRINCIPLES OF HORTICULTURE,
by Ervin L. Denisen. New York,
Macmillan, 1958. \$6.95.

A TREASURY OF AMERICAN
GARDENING, by John R. Whit-
ing. Garden City, New York, Flower
Grower, Home Garden Magazine
and Doubleday, 1955. \$6.50.

AROUND THE SEASONS IN DEN-
VER PARKS AND GARDENS,
by S. R. DeBoer. Denver, Colorado,
Smith-Brooks Print. Co. \$2.00.

ENJOYING AMERICA'S GAR-
DENS, by Joan Parry Dutton. New
York, Reynal, 1958. \$5.00.

GARDENING HANDBOOK, by T.
H. Everett. New York, Arco, 1955.
\$2.00.

GARDEN FLOWERS IN COLOR,
by Daniel J. Foley. New York, Mac-
millan, 1956. \$3.95.

GARDENS AND GROUNDS THAT
TAKE CARE OF THEMSELVES,
by Amelia Leavitt Hill. Englewood

Cliffs, New Jersey, Prentice-Hall, 1958. \$3.95.

AMERICA'S GARDEN BOOK, by James Bush - Brown. New York, Scribner, 1958. \$9.95.

PRACTICAL GARDENING, by Olive Mason Gunnison. Garden City, New York, American Garden Guild, 1955. \$4.50.

THE HOME OWNERS COMPLETE GARDEN HANDBOOK, by John Hayes Melady. New York, Grosset and Dunlap, 1954. \$2.95.

SHADY GARDENS; HOW TO PLAN AND GROW THEM, by Emily Seaber Parcher. New York, Prentice-Hall, 1955. \$4.95.

WHAT'S NEW IN GARDENING, by P. P. Pirone. Garden City, New York, Hanover House, 1956. \$3.50.

HANDBOOK FOR VEGETABLE GROWERS, by James E. Knott. New York, Wiley, 1957. \$3.95.

EASY WAYS TO A BEAUTIFUL GARDEN, by Ruth T. Gannon. New York, Studio Publications, 1959. \$5.00.

GARDEN WORK CENTERS, by the editorial staffs of Sunset Books and Sunset Magazine. Menlo Park, California, Lane Book Company, 1960. \$1.75.

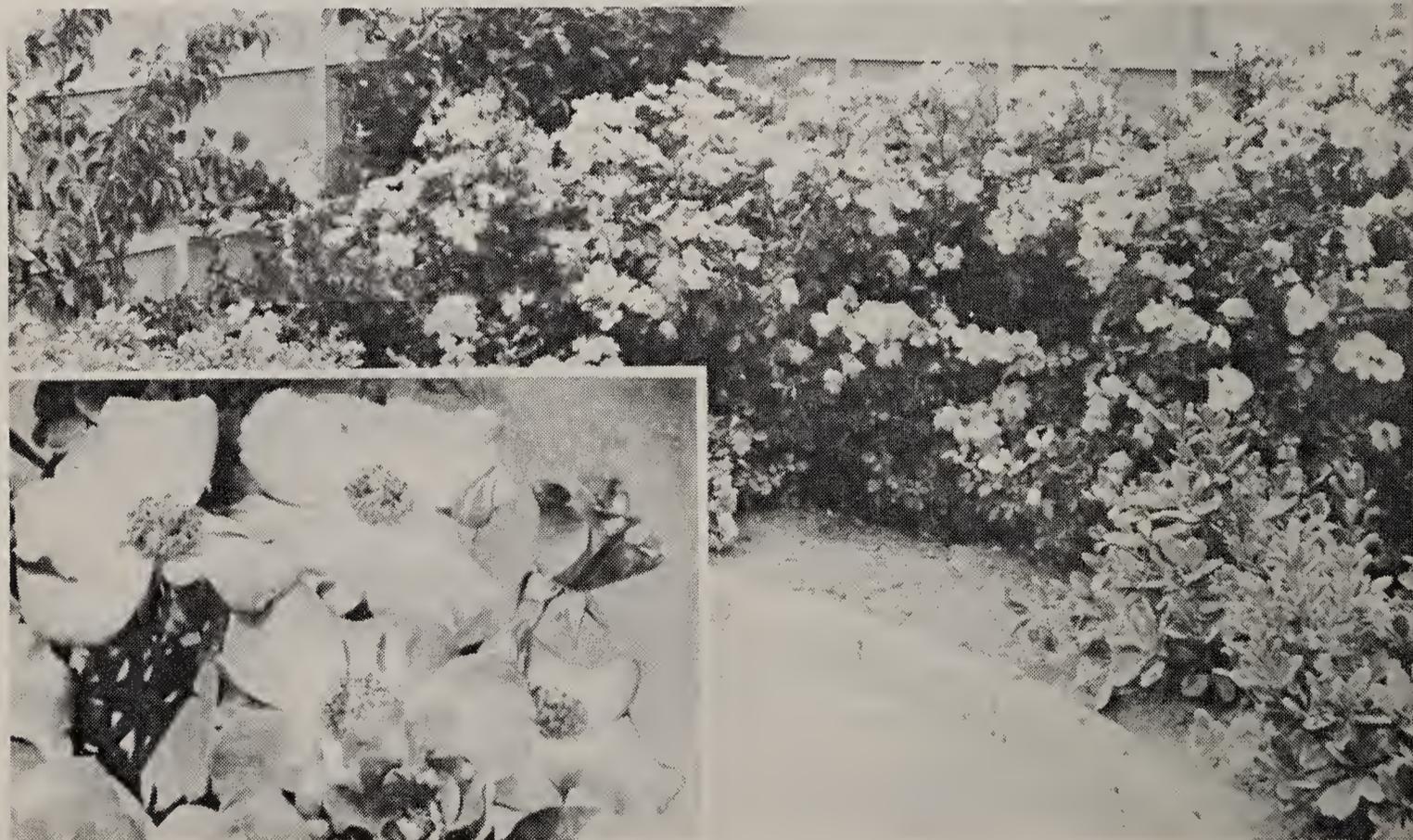
HOW TO BUILD PATIO ROOFS, by Sunset. Menlo Park, California, Lane Publishing Company, 1956. \$1.50.

SUNSET LAWN AND GROUND COVER BOOK, 2D EDITION, by Sunset. Menlo Park, California, Lane Book Company, 1960. \$1.75.

ENCYCLOPEDIA OF GARDENING, by T. H. Everett, editor. New York, Greystone Press, 1960.

THE BIOLOGIST'S HANDBOOK OF PRONUNCIATION, by Edmund C. Jaeger. Springfield, Ill. Chas. C. Thomas, 317 p. 1960.

COUNTY FAIR, EVER-BLOOMING ROSE OF MANY USES
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Rose County Fair

County Fair, a completely new, easy-to-grow, low cost rose bush for mass landscape and garden use in many different ways, has been introduced by Armstrong Nurseries, Inc., Ontario, California, for 1961

WHY DENVER BOTANIC GARDENS NEED A CONSERVATORY

Tree ferns and coconut palms in Denver? Yes, these and hundreds of other tropical and subtropical plants will be familiar to the people of our region when Denver Botanic Gardens get a conservatory.

What is a conservatory? In the horticultural sense, it is a kind of "glorified greenhouse" in which are displayed tender exotic plants that cannot survive cold winters. In temperate-zone climates such a structure is an essential feature of a botanic garden. Usually it is the dominant building on the grounds and the focus of public interest. Without conservatories most people in the United States would never have an opportunity to see or to study the rich tropical vegetation of the world. Of course, botanic gardens in frost-free climates do not require such facilities for growing and displaying tender plants.

The torrid zone contains some of the most colorful and most interesting plants and also some of those most useful to man. When we stop to consider the matter we are surprised at how many products of tropical vegetation are important to us in our daily living. Yet the plants from which they are produced are entirely unfamiliar to most of us.

Plant-lovers of the temperate zone are always thrilled at the beauty of some of the economic plants of the tropics: the neat tea shrub; the highly ornamental trees that yield coffee, cinnamon, nutmeg, chocolate and camphor; the stately trees that give us such fine woods as teak, mahogany and rosewood and the vines that provide pepper and vanilla. Everyone is interested in seeing the tropical plants that produce the exotic fruits such as papaya, mango, mangosteen and pineapple, and the sources of such plant fibers as kapock, sisal and Manila hemp. All these and many more may be seen in our own botanic gardens if we create a spot of tropical climate.

Denver, perhaps more than any other large urban area in America, needs a conservatory. The nearest one is in St. Louis, Missouri, where the Missouri Botanical Garden has recently completed a magnificent new conservatory structure called a climatron, at a cost of six hundred thousand dollars. Unfortunately that is 866 highway miles from Denver.

Due to the altitude, Denver has shorter growing seasons than most American cities of its size. Our out-door gardens, therefore, are attractive for only about four months of the year. This means that during about two-thirds of the time our gardens are drab and uninviting. With well developed conservatory plantings the Denver Botanic Gardens could have something of outstanding botanical and horticultural interest throughout the entire year.

With proper lighting the conservatory could be open to the public at night. In our long winter evenings many people could enjoy the displays who could not visit the gardens during the daytime. Few things could be more pleasant on a cold winter night than going from the snow into a luxuriant tropical garden inside a conservatory.

For study classes on botanical and horticultural subjects, which are a part of our Botanic Gardens' educational program, a conservatory is essential. Busy amateur gardeners usually have time for such classes only during the winter season. By that time there is little illustrative material to be seen out-of-doors.

Year-around study of live and actively growing plants is possible in a conservatory. It would serve not only for the Botanic Gardens' own classes but

also as a living laboratory for teachers of biology in public and private schools of the city and the surrounding territory. Bus loads of classes would come to the conservatory as they do to the Museum of Natural History and to the Zoo. Out-door gardens are at their best in our area only during the time when schools have summer vacation. Conservatory plantings could be planned to be at their best during the school year.

Many tropical and subtropical plants are now offered for sale in our area but there is a wealth of such material that is not ordinarily grown as house plants. A conservatory would be a means of acquainting the public with new and better plants for indoor gardening and also for inducing our nurserymen to produce or to stock them.

Denver Botanic Gardens with a good conservatory can be a year-around tourist attraction. In addition to the normal tourist influx of summer, Denver has many conventions of regional or national importance throughout the year. A good conservatory would be a drawing card for such meetings, just as are the Art Museum and the Museum of Natural History. The Denver Botanic Gardens office receives many calls from visitors to the city inquiring at what time the conservatory is open. They are disappointed when they learn that there is no conservatory.

The clear air of our high altitude and the many bright sunny days during our winters have been largely responsible for making Denver an important greenhouse center for the florist industry. These same conditions would make it possible to grow here the best conservatory plants on the continent.

With fine out-door gardens in which to grow the temperate zone plants, the alpine garden on Mt. Goliath for arctic and alpine species and a conservatory in which to display tropical and subtropical specimens, the Denver Botanic Gardens can have in Denver and vicinity an unusual and outstanding collection of the world's vegetation.

A. C. HILDRETH, *Director Denver Botanic Gardens*

LATEST MEMBERSHIP REPORT

Mr. Scott Wilmore of the W. W. Wilmore Nurseries has reported that his company has donated 162 memberships.

You can count the number of apples on a tree, but you can't count the number of trees in an apple.—Old Proverb.

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1858-1958

(*The Father of American Horticulture*)

Not only brain power and scientific training made a Liberty Hyde Bailey. He had a driving energy, a total honesty, a high organization. All these gave an unusual ability to see a problem, attack it, and get his ideas across.

Granting his 96 years, it took vast organizing to reach his standing as a philosopher and poet, as botanist and horticulturist (who did much to wed the two fields), as traveler and plant explorer (128 expeditions), as teacher and administrator (Cornell professor and dean), as writer and editor (author of 63 books and 1300 articles).

His schedule was 25 years for learning, 25 for earning, and 25 for what he wanted to do. Tensions between Dean Bailey and Cornell administration probably made the move easier, but he did retire in 1913 over protests of faculty and students, and a statement by Theodore Roosevelt that it "would be a calamity to state and nation."

Philosopher and Poet

Bailey always lived in the future, each day planned, and every year's program laid out on a New Year's day. He never wrote memoirs or travel experience — he planned the next move.

Botanist and Horticulturist

Studies under William J. Beal at Michigan and work under Asa Gray at Harvard continued the scientific training begun when Bailey the child, read and re-read Darwin and Gray's *Botany*.

His study of Michigan's sand-dune area was among the first, and his Cornell research pioneered in plant growth under electric lights, seed germination, and grape diseases. He was the authority on American sedges, and his 1888 photographs of European specimens

were pioneer work. He specialized in palms (the "big game of the plant world"), blackberries, grapes, cabbages and kales, pumpkins and squashes, the plantain-lilies.

His main contribution was in bringing together botany, the "pure science," and horticulture, the "applied science." He was a founder of both the Botanical Society of America and the American Society for Horticultural Science.

In a student-days' review of a new catalog of Michigan plants, he urged "every botanist" and "every educated farmer" to get the book. From then on he worked to remedy "the lack of any code for horticultural nomenclature."

Gray chided him for becoming a horticulture professor. "I queered myself with the whole botanical fraternity," Bailey recalled. Gray's *Botany* said that garden flowers had "too much mixing to be objects of botanical study." (Later, revising this classic, Bailey deleted the sentence.) He asked a Cornell botanist's help on a grape disease, but the answer was: "Is this a vineyard problem? Then I'll not touch it."

Bailey called himself "a man with a hoe," and kept his father's worn hoe on his office wall. In his boyhood garden, he "grew Vick's catalog", all the seeds sold by James Vick & Son of Rochester. All his life he grew new varieties, from catalogs all over the world, then studied and identified them scientifically.

Cornell's Bailey Hortorium is a major result of this work. It carries on his research on cultivated plants, and his eagerness to provide knowledge for all who need it.

His first known work was a paper on birds, read before the Michigan

Pomological Society when he was 15. (A prize was a cage of three of the first English sparrows in this country. He immediately liberated them.) His last book, *The Garden of Bellflowers*, came out when he was 95, and he was planning an encyclopedia on palms.

In these 80 years he wrote 63 books and 1300 articles. He edited and wrote four encyclopedias and two diction-

aries. He edited 117 books in a MacMillan series, many needing nearly complete rewriting. For short periods he edited *American Garden and Country Life* in America, and he founded *Gentes Herbarum*.

To Bailey's own talents were added his background, his childhood environment, and his era — the "century of horticulture."

HYBRID PETUNIA SEED PRODUCTION

New Hybrid Petunia seeds may seem expensive, but there are several reasons for their price. Gardeners who have been accustomed to paying 10c to 25c for a packet of flower seeds get quite a shock the first time they buy the new F₁ hybrid petunias.

The aristocrats of our gardens are enjoying a high degree of popularity with flower lovers. Almost all florists now use the F₁ hybrids. The varieties are brighter and more beautifully colored and are more uniform and vigorous in their growth.

Producing seed for hybrid petunias is a more complicated operation than most gardeners realize. Due to the risk of uncontrolled weather conditions, the petunias are pampered in greenhouses rather than planted out in fields. The F₁ hybrids are produced by crossing individual blooms of two selected parents. There is a female parent from which seed is harvested and a male parent which produces pollen. Therefore, only half of the plants can be counted on for a seed crop. Pollination between the two parents is done by hand. First, a flower on the female parent is opened while still in the bud stage and the stamens, which carry pollen, are removed. Then, pollen must be collected from the other parent and placed by hand on the pistil of the flower worked on previously.

Such a very tiny amount of seed results from each one of these pollinations that one would never believe it possible to collect enough seed for sale. However, it is possible for a good worker under ideal conditions laboring daily for several months on one greenhouse bench to produce about a full pound of seed.

Into the costly greenhouse production of seed goes years of experimentation many months of painstaking labor and much disappointment. As a result hybrid petunia seed runs from 3 to 12 times the value of its equal weight in gold. Some petunia seed, like the doubles, run 320,000 seed to the ounce, others 280,000 to the ounce.

There are many new varieties, too numerous to mention, that you may choose from. Your seedsman can best help you in your selection.

Few people know that one of the largest petunia seed producers is located at Paonia, Colorado, about 350 miles west of Denver. If you are ever near there, stop and see this operation.

—Mike Ulaski

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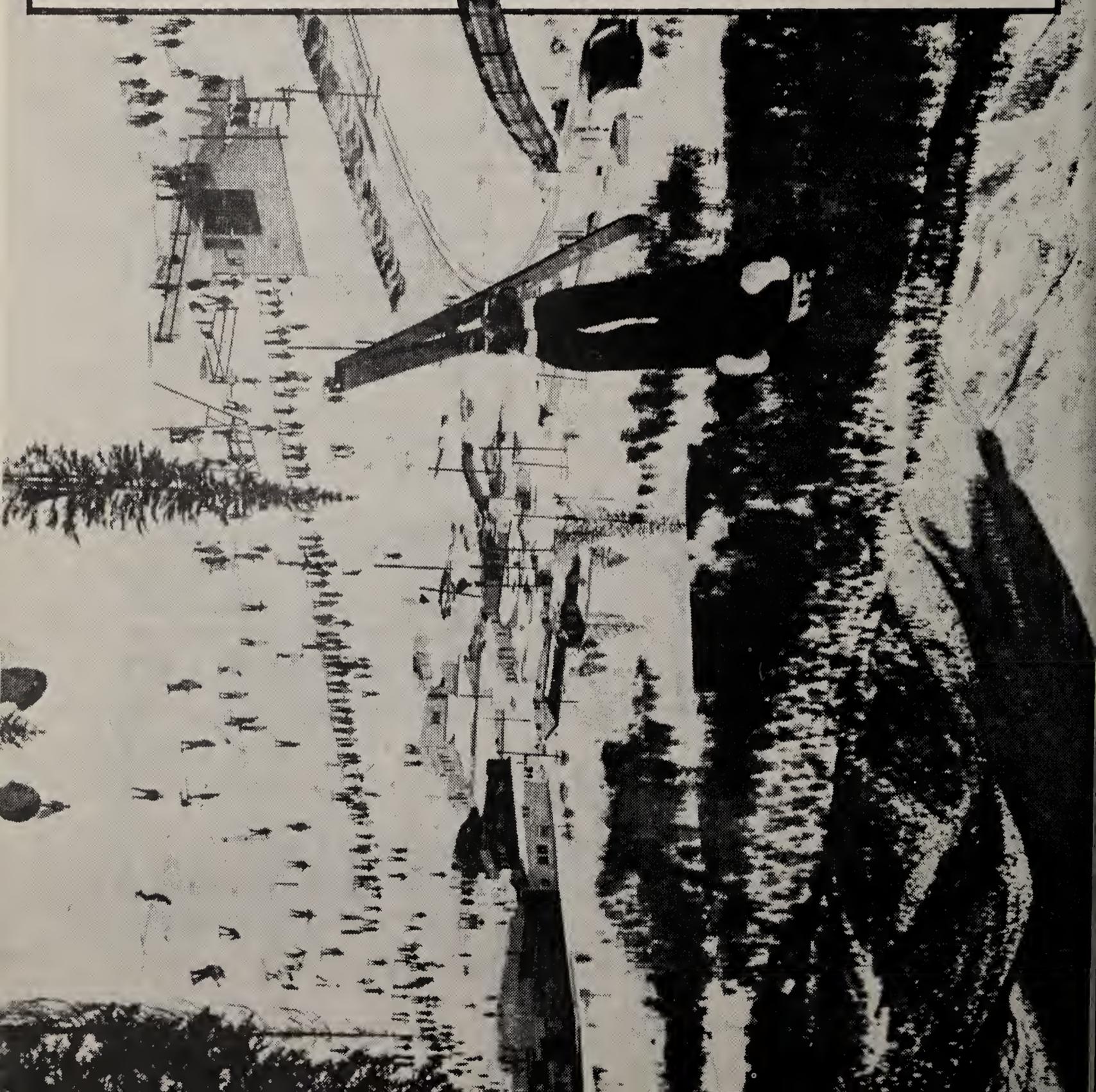
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The Green Thumb

Magazine for Rocky Mountain Gardeners



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MARCH,

1961

Cents

Crocus-Jeanne d'Arc

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MARCH

Vol. 18

No. 2

The Green Thumb

To conduct research on plants, both native and exotic, in varied plant zones of our region; to evaluate their economic, medicinal and horticultural potentials.

To coordinate the knowledge and experience of botanists, horticulturists and gardeners.

To educate the public in the best use of horticultural materials.

To maintain a large collection of plant species and varieties for study and display.

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Members



Calendar of Events

AT BOTANIC GARDENS HOUSE

- March 1—Botany Club. 7:30 p.m.
March 2—Orchid Society. 7:45 p.m.
March 3—Landscape Contractors. 7:30 p.m.
March 6—Botanic Gardens Junior Committee. 9:30 a.m.
March 7—Mountain View Garden Club. 1:00 p.m.
March 7—Tree Class. Topic: Tree Maintenance. Guest instructor, Charles M. Drage, Extension Horticulturist. 8:00 p.m.
March 8—Colorado Federation of Garden Clubs State Board Meeting. 9:30 a.m.
March 9—Rose Society. 7:30 p.m.
March 13—Judges' Council. 10:00 a.m.
March 14—Citizens' Park and Shade Tree Committee. 4:00 p.m.
Herbarium Study Group. Mrs. Kalmbach. 10:00 a.m.
Evergreen Garden Club. 7:30 p.m.
March 15—Fun With Flowers Workshop. 10:00 a.m.
March 16—"Around the Seasons" Garden Club. 10:00 a.m.
March 17—Botany Club. 7:45 p.m. Guest Speaker: Mrs. Helen L. Cannon, Geolo-

gist. Subject: Botanical Method of Preparing for Ore.

- Landscape Contractors. 7:30 p.m.
March 20—Denver Botanic Gardens Board Meeting. 7:30 p.m.
March 21—Tree Class. Topic: Tree Insects and Diseases and Their Control. Guest Speakers, Gordon T. Mickle, Extension Entomologist, and W. J. Henderson, Extension Plant Pathologist. 8:00 p.m.
Don't Forget the Garden Show Stockyard Stadium, March 26 - April 2.
April 3—Botanic Gardens Junior Committee. 9:30 a.m.
April 4—Mountain View Garden Club. 1:00 p.m.
April 5—Botany Club. 7:30 p.m.
April 6—Orchid Society. 7:45 p.m.
April 7—Landscape Contractors. 7:30 p.m.

FLORAL DESIGN CLASSES AT LORETTO HEIGHTS COLLEGE

- March 8-13—Registration. Loretto Heights College. Phone: WE 6-3423, Ext. 40.
March 13—Classes. 6:00 p.m. to 7:50 p.m. and 8:00 p.m. to 9:50 p.m.

INFORMATION concerning meetings to be published in the Calendar of Events may be sent to the editor before the 10th of the preceding month of publication.

NOTE: Dr. E. H. Brunquist is a new member of the Herbarium Committee.

CORRECTION: Mrs. H. I. Newman's name was inadvertently omitted from the list of Herbarium helpers in the Jan.-Feb. issue of *The Green Thumb*.

FIESTA

PLANT AUCTION

What Is a Fiesta?

In Spanish it is a feast or a holiday.

We are going to have an AMERICAN FIESTA which will be both a feast and a holiday!

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- rare and unusual plants at the **plant auction**
- things for easier gardening

You may even find a treasure from your grandmother's attic, stolen by her granddaughter for this occasion.

Oh, I almost forgot! You will also find pretty girls.

GARDENING WITH COLORADO

WILDINGS IV

RUTH ASHTON NELSON

Tall Deciduous Shrubs for Moist or Shaded Locations

WHERE are several good, tall native shrubs which can be used effectively in moist or shaded locations on large grounds. These may sometimes be used successfully on small places if their individual characteristics are studied and considered in the planting. The shrubs described in this article will thrive with the amount of watering given the average garden and cultivated shrubbery. If your garden is on a slope with lawns and gardens above you, you may find as I do, that these shrubs are once established they will receive a considerable amount of moisture as sub-irrigation in the form of drainage from the higher ground. Sometimes it is worth taking this into account.

In growing native plants it is helpful to realize that conditions of moisture and light may often be balanced by a wise gardener. For instance, the Pin Cherry will stand considerable sun if abundant moisture can be supplied. In a shaded location it will do well with much less moisture. This is also true of the Water Birch. The same theory applies to the sun and shade requirements of plants from high altitudes. The native Mountain Ash and Red-berried Elder which thrive in full sun at ten thousand feet should be given partial shade plus plenty of moisture when brought to locations at five or six thousand feet. All in this group are fairly rapid in growth. None is extremely long lived; but because they form clump forms (except the cherry), they will survive almost indefinitely if given good care. After maturity the oldest trunks should be removed periodically and the young shoots kept pruned.

Our Rocky Mountain Maple, *Acer glabrum*, grows in a graceful clump about 6 to 12 feet tall. Its several

trunks are clothed in smooth, gray bark and the young twigs, and especially the winter buds, are bright red. The dainty leaves are sharply toothed and may be only deeply three-lobed or completely separated into three leaflets. If you look at it closely when the buds are breaking in early spring you will be delighted by its small chartreuse flowers. It has a rather open habit of branching so it is not as useful for screening as some other shrubs but is effective in a natural shrubbery border or as a specimen.

As a small tree for a shaded, moist situation the Pin Cherry is very attractive. It will be covered with masses of creamy flowers in spring with bright cherries, delicious for jelly, in mid-summer and with rose-tinted leaves in fall. Bark on the young branches is dark brown and glossy, resembling that of our Water Birch but on the old trunks it becomes grayish black with an interesting checkered pattern. In the wild it is an understory tree with cottonwoods along our canyon bottoms. Curiously it sometimes appears as a low, scattered shrub on exposed gravel banks at high altitudes. It is useful in a narrow, shaded area between buildings, where a small tree is needed. Because of its horizontal branching it develops an interesting flattened or rounded crown and is very valuable where light summer shade is desired, as over an informal naturalized planting. I think that with a little careful shaping it could well be used as a specimen to give an oriental effect in a small garden.

There is a native pussy willow which is very lovely, the Blue Stem Willow, *Salix irrorata*. This is found growing along the lower canyon streams of the eastern slope most commonly between the altitudes of six and seven thousand

feet. Its branches are covered with a bluish waxy coating and thickly set with silver pussies. As with most willows, it roots easily. If you bring in a few twigs in March and put them in water in the house you can later plant the rooted stems. It grows rapidly but may be kept to the size desired by cutting branches for indoor decoration. It is subject to the same scale and other pests and diseases that attack cultivated willows, but these may be kept under control by spraying and pruning. If a willow becomes very badly infected it pays to take it out completely and start another in a different place.

My favorite of all the native shrubs is the Water Birch, *Betula fontinalis*. This graceful clump birch which grows about 8-12 feet tall, is found in abundance along most of our mountain streams from the foothills to timberline. Its dark brown, glossy bark has the birch markings and its twigs are as dainty as its white-barked relatives. This thrives in cultivation and while it appreciates plenty of water it will do well under ordinary garden conditions.

It is most attractive grown as a specimen so that its beautiful fountain form may be seen to best advantage. If you are fortunate enough to have a moderate size stream or pool, nothing could be lovelier than a Water Birch at its margin. In autumn the leaves turn clear, light yellow.

A Rocky Mountain Hawthorn *Crataegus sp.*, has bright, glossy leaves and dark reddish berries and is well worth growing. Other native shrubs from higher altitudes with which anyone interested could experiment, are the Red-berried Elder, *Sambucus racemosa*, and the Mountain Ash, *Sorbus scopulina*.

Small, rooted shoots of any of the shrubs can be collected in the wild and nursed along in your garden for several years until they reach an attractive form and size but it is easier and results come much more quickly if professionally grown plants are used. These are now available from several nurseries which are responding to the demand for native plant material.

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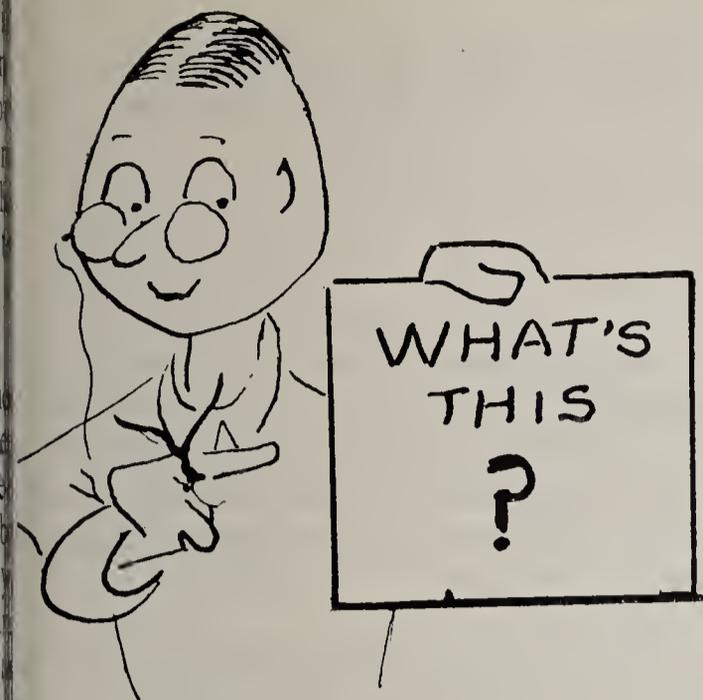
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“The crocus, first gem of the earth in spring, we prize for its beauty on but the little bloom was once valued for other reasons. The stigmas of the saffron crocus, the fall variety, were a cordial, and the juice of the flower was esteemed by the women of Rome as a hair-dye, for which latter reason it was disapproved by the fathers of the Church.” — *Myths and Legends of Flower Trees, Fruits and Plants* by Charles M. Skinner.

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Dear Ed,
Why is it that we don't grow Indian
Paintbrush in our gardens? It would
be such a good plant for rock gardens.
I've heard that Indian Paintbrush is a
"saprophyte," what does this mean?

SAPPY.

Dear Sapiens,
Wise you are! A saprophyte is a
plant that derives its nourishment from
non-living organic matter. It is not
correct to call Indian Paintbrush a
saprophyte. According to Professor
Arthur O. Longyear in his book
"Rocky Mountain Wildflowers," Paint-
brush is a semi-parasite. His studies
revealed that the roots of this plant
reach themselves to and kill roots of
grasses and certain other plants.

Growing Paintbrush under cultiva-
tion has concerned botanists through-
out the world. The Department of
Botany at the University of Denver is
conducting research on this plant and
a report will appear in *The Green
Thumb* as soon as some conclusive re-
sults are reached.

Dear Plant Lover,
Our outdoor planter has an east by
north-east exposure. We thought that tu-
berous begonias would thrive there but
they seem to get too much sun and
wind. What do you suggest we plant
at this location?

EAGER EAR.

Dear Eager Ear,

Depending upon the size and depth
of your planter, Dwarf Alberta Spruce
might provide a suitable plant for this
location—and it will give lasting effect
the year around. Winter Jasmine, if
the wind isn't too drying, gives yellow
fragrant blossoms in February. *Euony-
mus kewensis*, another vine-like plant,
holds its leaves all winter but will not
usually bear flowers or fruit.

Why not make a wish with *Torenia*,
the wishbone flower? This is an an-
nual that you can grow from seed in
your cold frame or buy at your garden
shop. While not as decorative as be-
gonia, it has beautiful velvety-purple
and yellow, snapdragon-like blossoms.
Torenia attains a height of six or eight
inches and will bloom all summer if
you periodically remove the withered
flowers.

Dear Garden Friend,

Each year the roadside stands offer
lovely little yellow-green evergreen
trees whose branches look like they've
been pressed in a book. Jaundice must
have taken over our tree because it
finally succumbed. What happened?

DEAD TREE.

Dear Dead Tree,

Your yellow-green trees are prob-
ably a species of arborvitae (*Thuja*)
shipped in from Texas. Their mortal-
ity rate here parallels an epidemic of
jaundice. Occasionally arborvitae will
survive in this area if planted on the
north or east side of a building. Those
that do survive, however, are probably
a species different from the species
brought in from Texas.

Some years ago Frank Richards
propagated arborvitae from cuttings of
a 25-year-old specimen growing in
Fort Collins, Colorado. Many of these
are found growing in the Denver area.

What a boon our Botanic Garden
research can be to lovers of arborvitae
and many other ornamental plants that
may be successful here.

ROSES FOR THE ROCKY MOUNTAIN REGION

CLYDE E. LEARNED

During recent years many new and beautiful roses have been introduced, most of which grow well in this region. However, there are a few which do not do well here. Although this is an area of light rainfall and low humidity we are fortunate in being close to the mountains and therefore we have plenty of water for irrigation. We are blessed with lots of clear days and plenty of sunlight and our cool nights are something our roses enjoy.

Rose growing in this Rocky Mountain region is quite different from that of the eastern states and the Pacific Coast areas. However, after a year or two of experience here, and with a little patience, one discovers that it is possible to grow beautiful roses. Our roses may not be as plentiful and as big as those grown in the East and West, but for real quality and beauty, they will probably surpass those grown in many of the other states of this nation.

One big factor in our favor is our relative lack of insects and disease. Of course we do have both, but not in the amount our Eastern and Western neighbors do. Black Spot is practically unknown and the destructive Japanese Beetles are so few as not to be much of a problem. Most insects and diseases can be easily controlled by periodic spraying and dusting.

To be truthful we do have one serious drawback, and that is in connection with our erratic springs with their wide and rapid fluctuations in temperature. During spring we often have a spell of warm growing weather in April, followed by a snowstorm, or rapid drop in temperature and a heavy frost. These conditions even have occurred during the fore part of May. After a few experiences with this kind of weather, one gets organized to combat these unfavorable happenings, so that the end results are not too damaging.

A recent issue of the *American Rose Magazine*, the official publication of the American Rose Society, includes a summary of the best roses grown during 1960 in the "PARK OF ROSES" the spacious and beautiful gardens of the American Rose Society at Columbus, Ohio.

A review of these tabulations indicates, in most cases, that the roses that do well in Ohio, also do well in our Botanic Gardens at City Park and 9th York St., as well as in many private rose gardens, in and around Denver.

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and Petunias in bloom

at the

Colorado Garden Show

See Us for the Seeds and Peat Pots to Start Your Own

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A summary of the results in the Columbus, Ohio, gardens which are arranged according to perfection follows:

Hybrid Teas	Floribundas	Grandifloras	Climbers
Sutter's Gold	Spartan ²	Dean Collins ³	Improved Blaze
Chrysler Imperial ¹	Frensham	Queen Elizabeth	New Dawn
Charlotte Armstrong	Vogue	Starfire	Spectacular
Tiffany	Baby Blaze	Carrousel	Cl. Spartan ⁴
Peace	Ivory Fashion	Montezuma	Don Juan
Mirandy	Ma Perkins	Buccaneer	Blossom Time
Rubaiyat	Masquerade	El Capitan	Parade
Angel Wings	Fashion	Golden Girl	Cl. Fashion
Garden Party	Red Pinocchio	Roundelay	Golden Showers
Tally Ho	Independence	June Bride	

The report indicates that the roses in 1960 were the best since the park opened in 1953 and that the judging as to priority was very difficult.

Regarding the Columbus tabulations, all of the Hybrid Teas listed do well in Colorado with the possible exception of "Angel Wings," which although a very beautiful rose, has not been a very vigorous grower or heavy bloomer.

In the Floribunda group, all roses listed, do exceptionally well in the Rocky Mountain region.

In the Grandiflora group all of the roses have done well with the possible exception of "Dean Collins," which instead of topping the list would probably be at the bottom in Colorado. This rose has a National rating of 6.9, indicating that it is only a fair rose, and in most instances in Colorado it has been very disappointing.

In the Climber group, the "Improved Blaze" would also head our list, followed by "New Dawn" or "Paul's Scarlet." I have seen a few Climbing Hydrangeas in Denver and they are very attractive and appear able to withstand our winters.

Although the rose "Golden Showers" was an All-American Selection as a Climber in 1957, it has not shown much promise in this region. It actually is a Pillar rose and tends to freeze back each winter. As for the remainder of the Climbers listed, reports at this time are rather meager as to their ability to withstand our winters.

Based on the opinions of our Denver Rose Society members and the results of the Denver Botanic Gardens in City Park and at 909 York St., as well as my observations of many private gardens, the following recommendations are made regarding a selection of Hybrid Teas, Floribundas, Grandifloras and Climbers which will do well in this Rocky Mountain region.

- in the Hybrid Teas—Usually Chrysler Imperial has been tops.
- in the Floribundas—Spartan has headed the list for four years straight.
- in the Grandifloras—Dean Collins has headed the list for three years straight.
- in the Climbers—Climbing Spartan made an excellent showing.

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The Hybrid Teas are:

	Cultivar Name	Flower Color	Fragrance*	National Rating
1.	Peace	Yellow Blend	S	9.6
2.	Crimson Glory	Dark Red	V	9.1
3.	Charlotte Armstrong	Light Red	F	9.0
4.	Tiffany	Pink Blend	V	8.8
5.	Chrysler Imperial	Dark Red	V	8.8
6.	Helen Traubel	Pink Blend	F	8.7
7.	Confidence	Pink Blend	F	8.3
8.	Show Girl	Medium Pink	F	7.6
9.	Eclipse	Medium Yellow	F	8.1
10.	Rubaiyat	Light Red	V	8.2
11.	Mme. Henri Guillot	Red Blend	S	8.4
12.	Tally Ho	Light Red	V	8.4
13.	Sutter's Gold	Yellow Blend	V	8.1
14.	Pink Favorite	Medium Pink	S	8.3
15.	Garden Party	Yellow Blend	S	7.7
16.	Nocturne	Dark Red	V	8.1
17.	First Love	Light Pink	S	8.0
18.	Mirandy	Dark Red	V	7.7
19.	Mojave	Orange Blend	F	7.4
20.	Mission Bells	Pink Blend	F	7.8

*Fragrance — V - Very Fragrant; F - Moderate; S - Slightly.

One of the All-America Selections for 1961 is the Hybrid Tea "Due" which is a two-tone salmon pink. This is a very beautiful rose and showed up very well in Colorado gardens where tested.

The Floribunda Roses appear to be getting more popular each year. These roses are used very effectively where a mass effect, as in a border or hedge, is desired.



DUET — 1961 All America Selection Hybrid Tea.— Photo courtesy of Armstrong Nurseries.



PINK PARFAIT — 1961 All American Selection Gandiflora.—Photo courtesy of Armstrong Nurseries.

The Floribundas are:

	Cultivar Name	Flower Colorado	Fragrance	National Rating
1.	Spartan	Medium Red	V	8.3
2.	Red Pinocchio	Dark Red	F	8.8
3.	Frensham	Dark Red	S	8.6
4.	Vogue	Pink Blend	S	8.2
5.	Fashion	Pink Blend	F	8.9
6.	Jiminy Cricket	Orange Blend	V	7.6
7.	Betty Prior	Medium Pink	F	9.0
8.	Donald Prior	Medium Red	F	8.3
9.	Eutin	Dark Red	S	8.6
0.	Ivory Fashion	White	F	8.0
1.	Floradora	Medium Red	S	8.2
2.	Permanent Wave	Light Red	S	8.1
3.	Dagmar Spath	White	F	8.2
4.	Independence	Medium Red	F	8.2
5.	Circus	Yellow Blend	F	7.8
6.	Ruby Lips	Medium Red	S	7.6
7.	Ma Perkins	Pink Blend	V	7.9
8.	Else Poulsen	Medium Pink	S	7.6
9.	Masquerade	Red Blend	S	7.8
0.	Starlet	Medium Yellow	S	7.9

During recent years a new group of roses has been created which have performed very well in this region. These are the Grandifloras which are a cross between a Hybrid Tea and a Floribunda. In general these roses are a little taller than the Hybrid Teas and although some varieties in this group do have a tendency to cluster, they for the most part, have long individual stems which are long enough for cutting and are excellent for exhibition purposes.

The most popular of these Grandifloras in Colorado are:

	Cultivar Name	Flower Color	Fragrance	National Rating
1.	Queen Elizabeth	Medium Pink	F	9.0
2.	Carrousel	Dark	F	9.0
3.	Starfire	Medium Red	F	8.1
4.	Montezuma	Light Red	S	8.5
5.	Roundelay	Dark Red	F	8.0
6.	El Capitan	Medium Red	S	7.9

The second of the All-America Selections for 1961 is the Grandiflora "Pink parfait." This is a two-tone apple blossom pink rose with excellent bloom and foliage. This rose also showed up well in Colorado gardens where tested, and undoubtedly will be one of the best of the popular Grandifloras in the next year or two.

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The three most popular climbers in the Rocky Mountain region are:

Cultivar Name	Flower Color	Fragrance	National Rating
1. Improved Blaze	Medium Red	S	8.1
2. New Dawn	Light Pink	S	8.8
3. Paul's Scarlet	Medium Red	S	9.1

The first two of these are everblooming, whereas the third, "Paul's Scarlet," is limited to one burst of blooms in early summer. From the results I have seen I believe anyone would be safe in planting a "Climbing Spartan" which is a very attractive rose. Although many climbing Hybrid Teas have been introduced in recent years, most of them do not have the winter hardiness to withstand one of our tough Colorado winters, unless they are planted in a well protected location.

For those who are not familiar with the American Rose Society National Ratings it might be well to point out that a rose with a rating of ten would be considered a perfect rose. Incidentally Peace with a rating of 9.6 and Crimson Glory with a rating of 9.1 are the two top rated Hybrid Teas in America.

Roses with ratings of 9 or over are outstanding, from 8 to 8.9 excellent, 7 to 7.9 good, 6 to 6.9 fair and 5 to 5.9 questionable. A rose with a rating below 5 would be considered poor, and would not be classed as a good buy.

Every year many questions are asked about the growing of Tree Roses in Colorado. The answer is, don't attempt to grow them here unless you plan to perform a large amount of winter protection work. Even then, in all probability your efforts will be in vain.

If you are planning to put in a rose garden or make extensive additions to your garden, it is suggested that you visit the Denver Botanic Gardens at City Park and 909 York St. at least two or three times during the season to witness the gorgeous display of the "Queen of Flowers." Such visits would give you a wonderful opportunity to inspect and select for your garden the roses that appeal to you.

In making your first selection of roses, it is not necessary for you to have the latest and most expensive All-America selections. Without doubt you will have just as much success if you first try out some of the older and less expensive favorites, which have stood the test of time, and on which the patents have expired. These old favorites which are still top rose show winners include Crimson Glory, Charlotte Armstrong, Christopher Stone, Pres. Herbert Hoover, Eclipse and many other excellent roses.

When it comes to buying roses, it is well to buy from the old line nurseries which specialize in roses or from reliable local nurseries and seed stores, all of which guarantee their roses and will replace them if they are planted according to directions and do not live. It is a mistake to buy bargain roses which are usually inferior plants or culls, or the left over dried out stock at the end of the season. The same is true of the so-called bench roses which are sold at a very cheap price by the hot houses at the end of the growing season.

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CACTI CAN PULL THEMSELVES INTO THE GROUND

MORAS L. SHUBERT

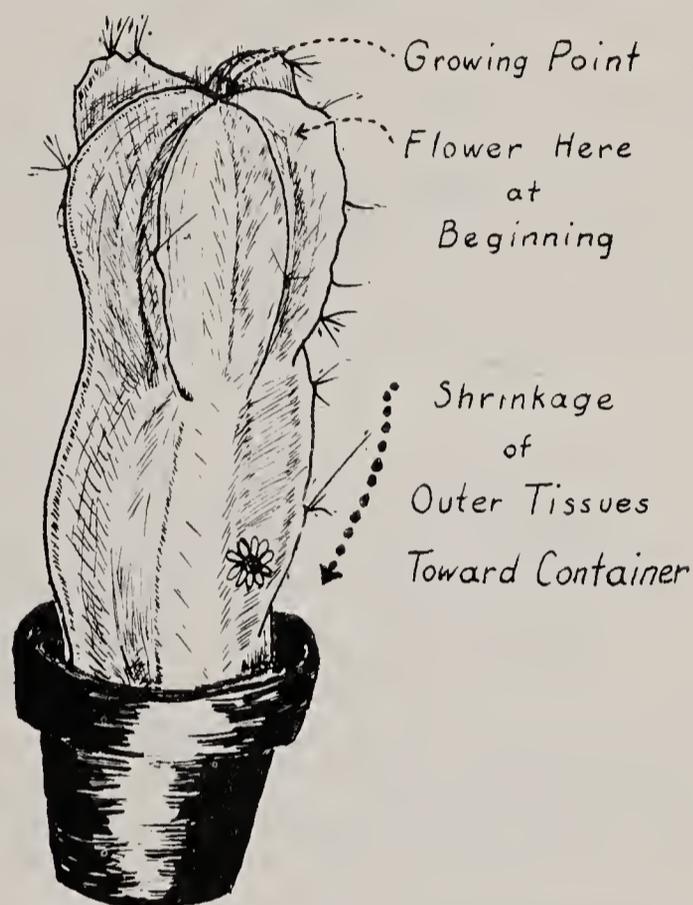
CACTUS plants that are adapted to desert climates have a rather unique habit of growth which is apparently not known to many people. Even the technical reports do not seem to describe the interesting trait which we have observed.

Sometime around 1950 my wife brought two small cactus plants home from a meeting of the Home Garden Club. Each was about an inch tall, and they were planted in separate, but equally ugly, little Toby mugs. Both the plants were decorated with tiny strawflowers, the stems of which were firmly punched into the tops of the cactus plants. These details are important, and it is fortunate that I did not follow my first impulse which was to remove the strawflowers and to replant the cacti into small flower pots. This is one time when procrastination yielded unexpected results.

For several years I watered these two little plants very infrequently, since I wanted to keep them healthy, but did not want to let them grow too large for their small containers. Then one day I was surprised to see that I got a drop of water on one of the strawflowers even though I was watering them with a tube held near the base of the plant. It suddenly dawned on me that the strawflower had moved down the side of the plant! A quick check of the other plant showed me that the same thing had happened to it. Now that I was watching this queer phenomenon more critically, I found that I could trace the movement of groups of spines (thorns) down the side of the plants.

It was then quite obvious what was happening. The growing point of each plant, as in most plants, was right in the center of the tip of the stem. New tissues are produced there, and when the plant gets plenty of water it con-

tinues to grow taller. But if the water supply is restricted the cells around the lower part of the plant shrink and the epidermis is drawn down by this shrinkage. The diagram will show more clearly than words what happens.



It appears from this observation that you can keep a cactus plant growing almost indefinitely without its getting larger. This should be of some practical value to those of you who have succulents in planters and do not want them to outgrow their containers. I cannot say this principle will work for plants other than true cacti, and only the desert species at that.

At any rate this seems to give support to an old Indian observation that "during dry periods a cactus will pull itself into the ground to escape the drought". We laughed when we first learned of this and filed it with the baseless superstitions. But now we believe that those Indians were making a true scientific observation.

See also: "Cacti and Succulents Have Personality Plus." Page 76

PREPARING FOR YOUR ANNUAL FLOWER BED



*From an interview with Michael Ulaski,
Superintendent of the City Park Greenhouses
by James R. Feucht*

Planting season is not very far away. March is a good time to begin preparations for the annual flower garden you have dreamt about all winter long.

By this time you may have already planned the garden and have ordered the seed but if not, now is the time to do it. Why now? First, seeds of some of the more desirable annuals may be difficult to obtain locally and time must be allowed for mailing of seed from other parts of the United States. This is particularly true of some recently introduced varieties of annuals such as *Celosia*, *Verbena* and several others. Secondly, for early flowering of annuals, planting at the optimum time is a must.

How may I obtain my annual seed? Mr. Ulaski suggests consulting your local seed dealer and if some desired varieties are not available, chances are that the dealer can tell you where they may be obtained.

When ordering seed be sure to specify the variety exactly as it is indicated in the catalog. Some will be listed by a code number but usually they are listed by cultivar (cultivated variety) name such as *Begonia* 'Christmas Cheer', *Lobelia* 'Blue Gown' etc.

To aid you in selecting your annuals, Mr. Ulaski has prepared a list of some of the selections that will be used this year in the Denver city parks. This list, included at the end of the article, is not complete by any means but includes many of the annuals that are relatively easy to grow and provides sufficient color variation to enable you to plan several good color schemes.

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After you have decided what to plant and have the seed, the next procedure, of course, to plant the seed.

To prepare for seed planting, first obtain some shallow containers such as metal pans, wooden flats, or even large, relatively shallow flower pots. Generally, 4 inches is deep enough. The dimensions of the container will depend upon the amount of seed you wish to plant and the amount of available space for starting them in your home. Into each container place clean, well drained soil or vermiculite. Most garden shops carry packaged soil of suitable quality and sell vermiculite by the bag. The soil or vermiculite should be tamped firmly in the containers but not so hard that poor drainage results. When using soil, pay particular attention to the edges of the container, because this area dries out first and if not firmly tamped in place, will shrink, and crack.

If the seed is very small, for example, petunia, verbena, and portulaca, scatter evenly but not too heavily over the surface of the medium. Do not over. Watering will tend to "wash" them into contact with the medium, or the seed may be lightly pressed into the soil surface. Larger seed may be planted in rows and covered to a depth of about the diameter of the seed unless otherwise indicated on the seed packet. Above all, label the rows and containers well so that you will have no doubt as to the identity of the seedlings when they germinate.

When should you plant the seed? This depends somewhat on the species but generally, early April sowing allows sufficient time for the seeds of most annuals to germinate and grow to transplanting size by the time they can be planted in the garden. Some annuals such as lobelia, gomphrena and others, should be planted earlier. If sown too early, the plants often get too big for the container. This results in overcrowding which produces spindly plants.

When the seeds have been sown, water thoroughly by using a fine mist to avoid "washing-out" the seeds. A clothes sprinkler will serve the purpose or a thoroughly cleaned "Windex" sprayer. Be certain that the medium is moist to the bottom of the container.

Place the seed containers in an unshaded south or east window for germination.

If a piece of glass or polyethelene is used to cover the container, usually it will not be necessary to water again after the initial watering until the seeds have germinated. Allow for some ventilation by propping one end of the glass up slightly with a small stick or, if plastic is used, make some small openings in the material. A paper punch works well for this purpose.

When the seeds are starting to germinate, increase the amount of ventilation a little each day until most of the seeds have germinated. At this time, remove the covering completely and check to see if more watering is needed.

Try to maintain the temperature of the room at 65 to 70 degrees F. If the sun shining through the window becomes too hot, periodical shading will help.

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After the danger of frost has passed (usually May 20 in the Denver area) place the containers outside but in a partially shaded place for a week. Gradually give them more sun each day and finally, give them full sun. This will tend to "harden-off" the seedlings and prepare them for the shock of transplanting.

Transplanting may be done at any time after this but try to do it on a cloudy, relatively cool day. Water the plants in well. Starter solutions (weak liquid fertilizers low in nitrogen) are often added to the water when watering the plants in. This gives the young seedling an extra "boost" and promotes better root growth.

With all of this accomplished, water occasionally, rout the inevitable weeds and sit back and watch your garden become a colorful display.

Cultivar Name	Flower Color	Height, and Other Characteristics
Ageratum, 'Blue Mink'	blue	to 6 in., good edging plant
Alyssum, 'Carpet of Snow'	white	to 4 in., edging, rock gardens
'Royal Carpet'	violet	to 3 in., edging, rock gardens
'Pink Heather'	pink	to 6 in., edging, blooms all summer
Begonia, ¹ 'Christmas Cheer'	scarlet	9-12 in., massing, borders
'Cinderella Rose'	red	9-12 in., massing, borders
'Indian Maid'	red	9-12 in., massing, borders, foliage bronze colored
'Masterpiece'	pink	9 in., massing, borders
'Silver Wings'	white	9-12 in., massing, borders, mix with red or pink
'Carmen'	bright rose	9-12 in., massing, foliage bronze colored
'Frosty'	white	9-12 in., massing, border, bronze foliage
Celosia, 'Forest Fire'	scarlet	18-20 in., tall border, flower the plumage type
Centaurea, ¹ 'Dusty Miller'	blue	6 in., silvery-gray foliage
Cleome, 'Helen Campbell'	white	to 4 ft., good for showy hedge-like border
'Pink Queen'	pink	to 4 ft., good for showy hedge-like border
Dahlia, ¹ 'Unwin's'	mixed	to 18 in., large flowers
Lobelia, 'Blue Gown'	blue	to 6 in., good edger, compact
'White Lady'	white	5 in., excellent edger
Marigold, 'Climax Golden'	yellow-gold	30 in., good border or massing
'Climax Yellow'	bright yellow	30 in., good border or massing
'Cupid Yellow'	yellow	8 in., dwarf
'Cupid Orange'	brilliant orange	8 in., dwarf
Nicotiana, 'Crimson Bedder'	crimson	15 in., massed or mixed
Nierembergia, 'Purple Robe'	lavender	6 in., good for borders
Penstemon, 'Sensation'	mixed	2 ft., mixed bedding
Petunia ¹		
Grandifloras		
'Maytime'	salmon	12 in., petals ruffled, fringed, double
'Prima Donna'	rose	12 in., heavily ruffled petals, double
'Pink Magic'	light pink	12 in., compact
'Fire Gleam'	red	12 in.
Multifloras		
'Paleface'	white	14 in., flowers with cream centers

'Pink Sensation'	pink	15 in.
'Comanche'	crimson	13 in., large flowers
'Neptune'	blue	12 in., non-fading
Phlox, 'Twinkle'	mixed	6 in., large flowers
Portulaca	mixed	4-6 in., ground cover
Salvia, 'St. John's Fire'	scarlet	12-18 in.
'Royal Blue'	blue	12-18 in.
'Royal White'	white	12-18 in.
Snapdragon, ¹ 'Cherry Red'	red	to 24 in., large flowers
'Stardust'	yellow	to 30 in.
'Hit Parade'	mixed	24-30 in.
'Golden Queen'	yellow	dwarf
'St. George'	pink	dwarf
Sedum venosa ²	mixed	12 in., edges and massing
Geranium, Cactus type		
'Cherry Time'	red hues	to 30 in., flowers 5 in. across
'Ice Cream'	cream	to 30 in., flowers 5 in. across
'Apricot'	apricot	to 30 in., flowers 5 in. across
'Blaze'	orange	to 30 in., flowers 5 in. across
'Sunnyboy'	yellow	to 30 in., flowers 5 in. across
'Eskimo'	white	to 30 in., flowers 5 in. across

¹ Tender perennials but treated as annuals in Colorado.

² Perennial but treated as annual in Colorado.

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GLAMOROUS GLADS

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Early April to mid-June is the proper time to plant gladiolus in this area. Now comes the question, "What varieties should I plant?" May I suggest for your consideration a baker's dozen of my favorites.

Bright, vivid red color in Iris is still a problem challenging hybridizers, but not with glads. Many fine red varieties are available, and two of the best are *Sans Souci* and *Harrisburger*. Tall, robust, healthy growers, they command attention throughout the season. *Harrisburger* is late flowering and takes over when *Sans Souci's* bloom is ending.

For contrast, *Mother Fischer* is a glistening, tall white with extremely ruffled florets. Of different form is stately *Peggy White*, tall and handsome. *Prospector* is also heavily ruffled, with an amber blotch against a cream background giving it an overall light yellow effect. Of medium yellow coloration is *Fiat Lux*.

Several years ago the Holland bulb firm of Konynenburg & Mark introduced a new group of gladiolus characterized by distinctive throat markings and blotches. Described as "Butterfly Glads", they have medium to

small florets on stems of average height and are highly prized by the flower arranger. Two of the most attractive "Butterflies" are *Ares*—white with red blotch, and *Melodie*—a tantalizingly tempting salmon pink with red throat.

Friendship, a light pink, is one of the earliest glads to bloom. Of somewhat deeper pink, and the most popular glad grown in the last decade, is *Spic & Span*—clear and clean in color and slightly ruffled. For a novelty in the pink class you will enjoy *Peintre Lady*, a gorgeous hussy whose light pink petals are outlined in bright scarlet. She does not grow as tall as some of her sisters and brothers, but is well worth having.

For intense color, *King David* is a grand performer. It is a deep royal purple with a rich red throat and the ruffled, winged and fluted florets have a silvery picotee edging. Lastly, we come to a real odd ball, *Uhu*. Its unusual smoky coloration of light chocolate brown with orange pencilings in the throat will make it a real conversation piece in your garden.

In addition to the above baker's

dozen of glamorous glads, I cannot relinquish this space without mentioning the *All-America* gladiolus. Since introduction of the first two All-America glads in 1956 their number has grown to an even dozen varieties. Tested and proved in trial gardens throughout the country, their popularity has increased enormously, and I enthusiastically commend them for your consideration.

If possible, plant glad bulbs in different soil each year. You may find it more difficult to rotate flowers in your garden than a farmer does crops in the field, but the advantages are equally as great, especially with glads. Continued use of the same spot will

bring disease and disappointment.

Large size glad corms should be planted about five inches deep with at least four inches lateral spacing from each other. Staggering the planting time from April to mid-June will help stretch bloom time out over the mid-summer and fall. When plants have grown to three or four leaves, water deeply once a week until blooming time. After blooming, restrain your enthusiasm to "wrest" the corms from the ground immediately. Most of the corm growth takes place after blossoming. Mid-October is not too late to dig. Dry, clean and store in a cool, ventilated place until spring, but avoid freezing temperatures.

GARDENER-FLORIST APPRENTICE TRAINING PROGRAM

The Parks and Recreation Department of the City of Denver is continuing to actively promote improvement of the job knowledge of its employees. Over the past several years there have been various types of training programs for parks employees. One of the major ones this year is the Gardener-Florist Apprentice Training Program being held every Wednesday, November thru March, from 3 p.m. to 5 p.m. in the City Park Greenhouse. In addition to the Parks and Recreation Department the class is being sponsored by Opportunity School and the Apprentice Bureau of the Department of Labor.

Other men who have taken part in demonstrations or given guest talks have been: Richard Schimming, demonstration of budding technique; Jennings Dixon, demonstration of tree-root balling, and sprinkler heads; John Kucler, pricking out and planting; William Withrow, flat preparation and seed planting; Mike Ulaski, tour and explanation of greenhouse procedures; Edgar Johnson, parks and planning; George Kelly, general garden knowledge and specific information regarding disease and insects with regards to plant life; Dr. A. C. Hildreth and Dr. James R. Feucht, lawn fertility and sodding.

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AMORPHAS

The genus *Amorpha* furnishes us with several shrubs which are especially useful in this area but which have little use as ornamental plants in other areas where the selection is greater.

The most valuable of the several species is the Leadplant, *Amorpha canescens*. This plant grows to 2 feet tall in most garden soils and to 3 feet in especially favorable locations. The fine, silvery-gray foliage is particularly attractive in contrast with other coarser and darker green leaves. The bloom consists of terminal spikes of violet colored flowers which are very spectacular when seen in summer at the time when few other shrubs are in bloom. Throughout the rest of the summer it is a modest, inconspicuous plant and in winter it very much resembles a dead tumbleweed.

Because good, low shrubs are scarce, and summer bloomers are scarcer, this little shrub fills an important place. Enjoy it while it is in its prime and look the other way the rest of the year. Not the least of its advantages here is that it is deep-rooted and quite alkali tolerant. It is a native of Colorado.

A similar shrub in the same genus is *Amorpha nana*. The leaf, flower and



AMORPHA CANESCENS

growth habit is similar to the Leadplant, but the foliage is green. There is a native type which remains under 1 foot tall. The Indigobush, *Amorpha fruticosa*, is a much taller shrub with green leaves and violet flowers. It has been used occasionally in ornamental plantings, but because it is a rather loose, formless plant it has never become very popular.

Under difficult, dry, poor-soil conditions these amorphas can fill a need in our list of ornamental shrubs.

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VIBURNUMS

If I were asked to nominate one genus of shrubs as the most valuable for landscape planting, I believe that it would be the viburnums and if I were asked to select the most important of these many good plants for use in this area, I would select *Viburnum lantana* or Wayfaringtree. All the viburnums are aristocrats and often on plans I simply specify "*Viburnum*" and let the homeowner select from *V. lantana*, *V. dentato*, *V. opulus*, *V. roseum*, *V. dentatum*, and *V. trilobum*. Then, there are those partly-tender kinds like *V. carlesii*, *V. burkwoodii*, *V. chenaultii* and *V. carlcephalum*.

The Wayfaringtree Viburnum will, in time, become a tall and spready shrub; sometimes achieving up to 12 feet, but it is slow growing and always neat. The flowers are, like most of the genus, white and grow in large, flat clusters. The fruit of the *V. lantana* sets it aside, for at the time that it is ripening there may be concentric rows of green, yellow, red and black all at the same time. It may be eaten by some birds but is not usually palatable to humans. The roots (which only a nurseryman ever knows about) and the fermented fruit have the typical viburnum "wet-sheep" odor, but this does not detract from the shrub, simply serving as positive identification to the initiated.

Although all viburnums are rather deep-rooted, this species and the others first mentioned grow very happily in our area of the "Sunshine States". They are rather easy to plant and maintain. Little pruning is needed until they begin to outgrow their location, then a few old canes taken out, down to the ground, each year, will keep them almost eternally youthful.

What would be YOUR nomination for the most useful ornamental shrub for this area?

YELLOWHORN

Many shrubs which are rather unimportant in other, moister areas, be-



VIRBURNUM CARLESI

come of major importance to us here because of their ability to tolerate dry soil, dry air and alkaline soil. The Yellowhorn or "Chinese Chestnut", *Xanthoceras sorbifolium* is one of these. There are occasional specimens found in the Denver City Parks and scattered over the city, but it has never become well known.

The general effect of the plant is somewhat like a sumac: tall, loose and irregular. The leaves are compound, resembling a mountainash. The flowers are not quite like any other plant. They grow in large clusters, tubular, generally white with touches of red and yellow at the throat. This tree-like shrub is very attractive when in bloom. The fruit resembles a buckeye or chestnut. The plant is rather easily started from seed or small seedlings. As with many of our most valuable shrubs it is deep-rooted and difficult to move when large.

Few nurseries carry this shrub, but it has become rather well established in parts of Nebraska, where seeds can sometimes be obtained.

COMPOSTING

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Quoting Beryl Frank in *The National Gardener*:

“Arrangements are essentially
in geometric shape;
I’ve horizontal, vertical, and
triangles (with tape).
I really like the Hogarth line;
I work at it with verve,
But never will I understand the
Parabolic Curve!”

My understanding isn’t taxed by the Parabolic Curve thanks to Mrs. Earl B. Griffie who defines it, as applied to design in flower arranging as a geometric design in which an egg-shaped curve is combined with a vertical line. The center of interest is usually placed where the vertical line meets the curve, near the top of the container.

I wish someone could explain why gardeners fail to support their own house organ, *The National Gardener*. Mrs. Vivian Christensen is State Chairman, and here’s one hundred cents worth of pre-inflation value.

We are happy to see that the Federation has closed the gap between Junior and Senior Gardeners. “Let’s Teach Flora” is the fashion. Van Anderson Blanchard, promoter of liaison gardeners states their purpose: TO TEACH THEM to use their eyes TO SEE HORTICULTURE then grow it; TO SEE CONSERVATION then practice it; TO SEE OUR RESOURCES then conserve them; TO SEE CIVIC PROJECTS then promote one.

High schools, 4-H Clubs, Senior Campfire and Scouts, Y. W. C. A., houses of correction and displaced



Pink Parfait with Horehound Foliage. Container: Inverted cut-glass antique vase. Mechanics: Plan materials in custard cup with pinholder, cup glued to bottom of case. Photo by Art Gore.

youth, to list a few, are naturals for this versatile gardening program. The groups (either or both sexes) choose their own programs (as yet there are no dues) and at a time when it fits into their particular schedule. The Federation provides the instructors, for free, naturally. For further information please contact Mrs. John Scott, 4550 So. Galapago St., Englewood.

Perhaps the “Recipe of a Volunteer” would fit in here, as most Garden Club

FRENCH HYBRID LILACS ON THEIR OWN ROOTS

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AILEEN C. FLUKEN

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work is carried on a salary less basis: 'Cream together one part spare time with desire to help others, add slowly series of indoctrination and orientation courses, add dash of enthusiasm, courage, originality for flavor. Combine thoroughly, steadily beating in many hours of service; then add large quantity of well-sifted patience with equal amount of milk of human kindness. Pour into a warm heart, bake well in a pan of experience. When done, top with three D's—Discipline, Drill, Dependability and serve in generous portions.'

Advice is something else always served up in generous portions by the one giving it, reminding us that planting for winter is a little like planning for retirement with the time to do both now. George Kelly in his book, "How to Have Good Gardens in the Sunshine States", remarks that winter "... is the time of year we most appreciate all the fine coniferous evergreens that do so well in the Rocky Mountain area—pines, spruces, firs, junipers, of every size and shape. A few small broad-leaved evergreens such as English Ivy, Mahonia and some varieties of euonymus also help make little spots of green in the winter. Then there are the deciduous trees and shrubs with various colors of bark, stems and berries, such as the native Red Stem Dogwood, the Golden Weeping Willow, Japanese Barberry and several kinds of cotoneaster." Spring is the season to plant for winter.

The American Association of Nurserymen are in accord with this plant planning when they speak of "sun traps" to prolong seasons. A sun trap allows full sun to pour into an area, while cutting off cold air streams. From a similar spot, I cut pyracantha, yucca blades, succulents, and horehound (an herb) for floral designs during January, calling the creations "Salvage." Mrs. Jess Gibson enjoyed *Helleborus niger multifolius*, the lenten or Christmas Rose peering out of the snow. This flower is reputed to be tops as a cut

flower, and I intend to speak from first-hand experience in the near future.

While we're all planting, let's include some flowers for floral designs. Flower arranging is much easier if we have round or head forms for the focal areas; spray or filler materials to provide transition and spike plants for line. It's the latter we lack, usually. Some supplements include: Adam's Needle (*Yucca*), beard's tongue (*Pentstemon*), butterfly-bush, cattail (*Typha latifolia*), Chaste Tree (*Vitex*), delphinium, false indigo (*Baptisia*), foxglove, fuchsia, gas-plant, gladiolus, hollyhock, grape hyacinth, larkspur, lavender, lobelia, lupine, monkshood, pussy-willow, snapdragon, speedwell (*Veronica*), squill (*Scilla*), thermopsis, and torch-lily or red hot poker. This list is recommended for long-lasting cut flowers. There are many new and beautiful varieties of some of the old, more common favorites.



Pink Parfait and Coriander, an herb. Container: Turquoise blue for contrast. Mechanics: One rose in Orchid tube, the rest in an oasis. Roses raised and arranged by the author. Photos by Art Gore.

Spring is the time to organize a corsage club. Remember Mrs. John Sobbiella, Littleton? Then when the proms, graduations, weddings and other social functions come, we'll be in practice. Too often the need for a corsage is spasmodic or irregular, while a flower arrangement can be used every day of the year. If we're in the habit of creating these floral accessories, we'll have all the equipment at our finger tips—well, at least, we'll have it, and what's more economical we'll have grown the corsage-type blooms in our yard.

Of course, the corsage flower to end all corsage flowers is the rose Pink Parfait. To know this, just grow it and show it. It arranges beautifully, too. Pink Parfait, however, is not without close competition in the design division. Its chief contender is Duet. Both are 1961 A.A.R.S. winners originated by Armstrong Nurseries. Anyone planting roses should add Pink Parfait and Duet. If you've never before planted roses, start with these two varieties and you'll agree with the rave notices about them.

To conclude, Mrs. Carroll Edsall of New York shares this Garden Club Creed for 1961 with us:

I BELIEVE in the great fraternity of Garden Clubs.

I BELIEVE in the welding together of over 14,000 clubs and over 400,000 members into an organization with kindred aims and purposes.

I BELIEVE that each individual club perhaps is unaware of its vital part in the National affiliation, yet it still plays its part in making a more beautiful America.

I BELIEVE in the fellowship and the friends that are made in Garden Club work.

I BELIEVE that whatever enriches one community enriches the whole.

I BELIEVE that garden club members have, individually and collectively influenced legislation and promoted education in Horticultural and Conservation fields.

I BELIEVE that progress is our most important product and that better programs will make better clubs; better schedules will make better shows and a growing knowledge will make better members.

I BELIEVE in the healing power of Garden Therapy.

I BELIEVE that Gardening is one of the greatest forces in the world today for the betterment of the human race and I am glad to have my small part in it.

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BRIEFING FOR SPRING PRUNING



LEE CHAMBERS, *Tree Surgeon*

WHY should a man who makes his living as a tree surgeon write an article telling others how to do their own pruning? The answer is easy: people who do their own work will still do it, but this may help them to do a better job. As for those who have the work done by professionals, not all of whom are qualified, this may enable them to recognize the difference between good pruning and the butchery that is so prevalent throughout this area.

In the first place, what is the meaning of the word "prune?" According to Mr. Webster, it means "to lop or cut off the superfluous parts, branches, or hoots of; to clear off useless material; to shape or smooth by trimming; to trim; as to prune trees." This definition leaves much to the discretion of the pruner. How much is superfluous? What is "useless?" How much "to shape or smooth?" I would like to add to Webster's definition by classifying pruning as formal, natural, corrective or maintenance pruning.

Formal pruning usually brings to mind such things as sharp, hard, smooth shapes like hedges, shaped evergreens, espaliered trees, and other unnatural shapes. Spring is not a very good time to do formal pruning because the rapid growth at this season soon obliterates the effect desired. However, if one wants to change from an informal aspect to a trim, tailored look, spring is the time to start. In this case the rapid growth is an asset because it enables the plant to heal rapid-

ly, proliferate new twigs, and assume the thick, solid appearance usually desired. Subsequent trimming after the lush spring growth will give the smooth, finished, formal look.

Natural pruning can mean either pruning done by nature or pruning that maintains a natural appearance of the plant. Of course, we must mean the latter. All plants have a natural beauty (even the grotesque cacti) that can be retained in pruning with a little care. The gradual taper of a branch, the delicate tracery of dark or colored twigs against the sky or contrasting background, the natural intermingling of the different plants, all are things to be considered when pruning. Certainly there is no beauty in a large stubbed-off branch, or in a bush that resembles a whisk broom from repeated "hair cuts." Spring is the optimum time for pruning. Now one can easily see dead, deformed, broken, rubbing or otherwise undesirable branches. The shape of a shrub, its size, or even its location can be altered in the spring with the least surgical shock.

As for the actual pruning, the best advice I can give is keep your tools in the best possible condition. Dull saws, pruners, etc. make the task hard work rather than the pleasant relaxation it should be (if done by oneself, that is). Also dull tools are dangerous. To use them requires much more effort, and a slip usually is quite violent under these conditions. Rust dulls tools and makes them hard to spot when they lie with the debris of trimming.



Not this because . . . you will get this.

A second bit of advice is take it easy! One can cut off a branch a piece at a time, but just try to glue one back on. Usually one can pull a branch aside to get a preview of the effect of its removal.

When making any, and I mean ANY, pruning cut on woody plants, it is best to make a flush cut. This simply means that no stub is left. It sounds simple, sounds easy—well, just take a critical look at your trees and shrubs. Can you see any stubs, awkward branches? The streets of this city are literally lined with atrocities committed in the name of horticulture. To get a fair idea of how a flush cut should look, hold your hand up to say “stop.” Now fold your thumb into the palm. That’s how a flush cut should look, a smooth continuous line with no obvious breaks. Try to avoid creating unnatural angles when removing branches, such as when removing the end of a long branch by cutting to a lateral branch.

What about the pruning of our shrubs?

Nothing has been said about which shrub varieties to prune in the spring. Since most flower buds are at the tips of the twigs, it is obvious that if these twigs are removed the shrub cannot possibly produce flowers. The early



Do similar to this so that . . . you will get this.

bloomers should be pruned after they have blossomed. In this way the new growth will be able to flower next spring. Shrubs that bloom in the summer may be pruned while dormant since the flower buds are usually found on the spring growth. This problem can be eliminated by a well-planned pruning program because only a few flower buds will be removed at any one time.

To summarize, a few general rules. Do any major pruning of spring-flowering shrubs just after they have bloomed, prune summer-flowering shrubs while dormant. Gradually renew individual bushes by removing few main stems each year and allowing perhaps twice as many new shoots to grow. Part of these will be allowed to mature to replace the removed stems. Have your pruners handy to do minor pruning at any time and remove branches when they are broken or become unsightly. The best rule is that except for formal pruning, plants should not appear to have been pruned even just after the job has been done.

My intention is not to create a horde of expert pruners, but a little sound advice coupled with your own common horse sense should result in a greater number of more attractive trees and shrubs.

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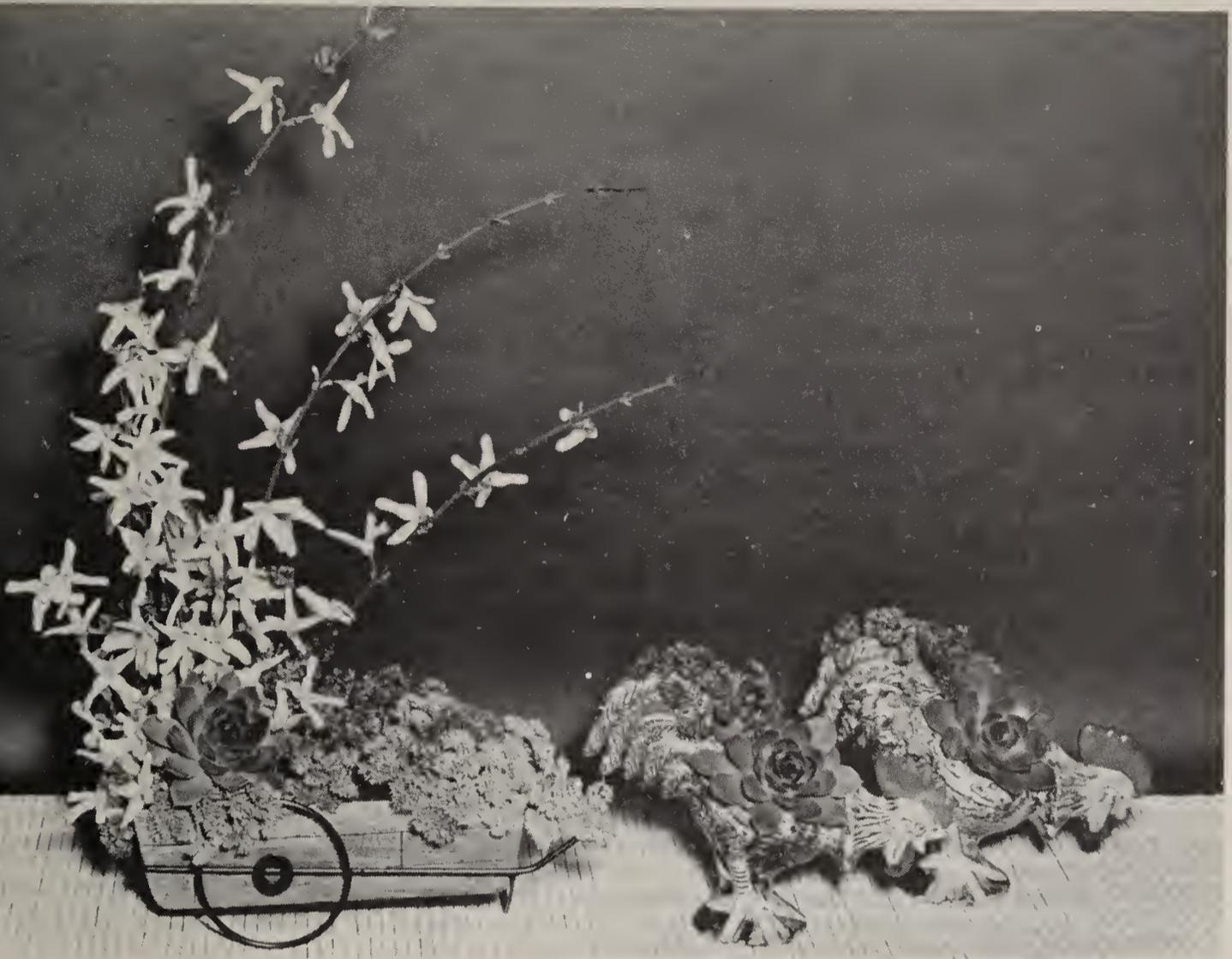
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Plant materials: Forsythia, parsley and hens and chickens. Base: Table mat in yellow. Container: Baking dish in green ceramic and wrought iron wagon stand. Accessories: Ceramic rooster containers. Mechanics: Oasis. Photo by Art Gore.

GIVING PLANTS THE "BLOOM'S RUSH"

MRS. JOHN SCOTT

FORCING is encouraging plant materials to put forth leaves or blooms prior to their accustomed time. It is pushing the season.

Reasons for man's impatience could be: the scarcity of fresh plant materials; extra expense of purchasing materials; that this type of plant materials lends itself to late winter and early spring arrangements; people like to work with nature and forcing stems of trees and shrubs is just another hobby.

Early flowering trees and shrubs are the most rewarding. Use the previous season's stems which contain flower buds when selecting material for forcing. Older stems usually contain fewer

and less vigorous buds. Select branches from the south side of the plant where buds are usually more abundant. Flower buds are usually more plump and rounder than leaf buds, which are most often slim and pointed. Use long, sturdy stems. Smaller branches tend to dry out too quickly. From the standpoint of design, the less twiggy the better.

To make gracefully curved stems, so often desired in arrangements, insert a small pole (broomstick size) in the center of the shrubs in the fall. Wind the flexible stems around the pole and secure with stout twine or "twistems."

It is sometimes possible to cut the

stems for forcing, and at the same time, to shape the plant into a desirable form. The weather dictates when to collect the forcing material. If cut on a warm, sunny day the buds will open more quickly. When stems are hard-frozen, cutting may cause splitting, thus permanently injuring the tree or shrub from which the stems are taken. Use a sharp knife or pruning shear and make a clean, slanting cut. The slanted cut is important because it exposes more surface for water uptake than a straight cut.

Stem-end treatments vary with the "forcer." Some hammer and pound, some peel off bark, and others make several 4- or 5-inch splits in the diagonal slash. The latter method is more general. The former could encourage bacteria with so many mashed and mangled cells.

To hasten forcing, submerge the shoots in warm (not hot) water for times varying from half an hour to half a day depending upon the species being forced. A tank or bathtub is the usual utensil for this preliminary. If the stems are frozen they undergo the same treatment except that cold water is used instead of warm.¹

After the submersion treatment, place the stems in a deep container (an old crockery butter churn minus the dasher and lid would be ideal) and cover the shoots one-half their length with cold water. (Forcing can be hastened by placing them in hot water—100 degrees F.) A few experts place charcoal in this water and all change the water every third day or every week. With each water change, cut off about one inch of the lower end of the stem.

The upper or out-of-water portions of the plant material should be sprayed

with water at least once each day. An atomizer for "humidifying" indoor plants is suitable for this purpose. As to temperature, the room in which the stems are kept should be cool, ranging from a low of 45 degrees F. at night to a high of 70 degrees F. by day. The lower temperatures extend the blooming period but will somewhat retard the opening of the buds. Coolness is believed conducive to better substance.

There is much division of opinion as to the amount of light that should be allowed to filter into the draft-free room, sun porch or greenhouse in which the forcing is taking place. Some think that filtered light is best and that direct sun dries the buds; but once the buds are open, sunlight intensifies the color of the petals. Others think a light but not sunny window is best. If forcing progresses faster than desired (for some special occasion) it can be slowed down by placing the shoots in a cool, dimly lit room. Ideally, the forced shoots should flower six to eight weeks ahead of the time they would have flowered outdoors.

There are, however, other factors influencing the time required. Shrubs that produce blooms before the leaves appear, such as forsythia, force more readily than vice versa. The later that plants bloom outside, the longer it will take to force them indoors. Varieties that bloom early outdoors force more quickly but do not last as long as those that bloom later and force more slowly. Trees and shrubs with naturally hard wood are usually difficult to force. Those that bloom on wood of the current season's growth such as roses, hydrangeas and hibiscus, cannot be forced at all because they have no overwintering flower buds.

John C. Wister in *National Garden Book* recommends the following plants

¹ Forcing may be hastened also by placing the stems in a plastic bag containing a vial of ether or chloroform for a certain period of time depending upon the species. Bailey's *Standard Cyclopedia of Horticulture* reports a maximum period of 48 hours exposure to the gases. From the literature, it appears that the use of ether and chloroform for forcing originated in Germany over a century ago. CAUTION: Ether is highly inflammable, chloroform is not but it is injurious when inhaled. — Editor

forcing flowers: Forsythia, the most popular; Japanese Quince; serisee berry; redbud, sand cherry; Munberg Spirea; honeysuckle; and Winter Jasmine. For ornamental leaves: catkins; alder, birch, flowering currant, hazelnut, horsechestnut, Pussy Willow, and Red Maple. Trees and shrubs to be forced slowly: For flowers: Almond, apple, pear, crabapple, ash, boxelder, cherry, deutzia, dogwood, mockorange and plum. For

leaves: Poplar and mountainash.

References in addition to the *National Garden Book*:

Gardening, forcing, conditioning and drying for flower arrangements, Arno and Irene Nehrling

How to make cut flowers last, Victoria R. Kasperski

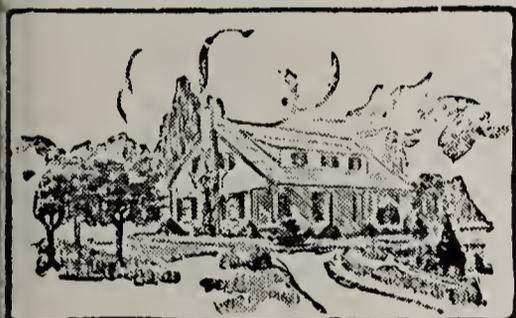
Symbolism in flower arrangement, Ervin S. Ferry

The complete book of flower arrangement, Rockwell and Grayson

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—Lucy Larcom, “Plant a Tree”



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GORDON T. MICKLE *



MARCH is a good time to take stock of your supply of insecticides, herbicides, and fungicides — that is, if your early gardening enthusiasm is to produce the results you expect. March is also a good time to check over your spray or dust equipment to make sure it is ready when the insects, weeds, or plant diseases appear.

“Bug” time may be nearer than we realize. Several insects overwinter in hibernation and are awaiting the first green growth. Others overwinter as eggs or in a partially-grown state and become early arrivals in the flower or vegetable garden. Needless to say, weeds are always a problem and very often they have a good start before cultivated plants appear.

March and April are also good months for cleaning up scale on trees and shrubs if this has not been done. Dormant oil sprays may be used anytime before the buds break but don't

crowd this time too closely. Dormant oil is largely used for scale insects and mite and aphid eggs. Oystershell scale is very destructive to many common shrubs but especially to lilacs, willow dogwood, and Cotoneaster. Oystershell scale insects, when numerous, weaken the shrub by sucking out the juices. They often become so numerous that they kill entire shoots or branches. The scale may be recognized by its peculiar shape, color, and markings. They are about 1/8 of an inch long, brown, and with markings which resemble those seen on an oyster shell, hence the name “oystershell.” In winter and early spring this insect is motionless. Actually, the old mother scale is merely a shell under which are dozens of tiny, pearl-white eggs.

To control oystershell scale, regular dormant spray oil should be used at the rate of 3 pints per 5 gallons of water. The new superior or supreme type oils are recommended at 1/2 to 1 pint per 5 gallons of water for this

* Extension Entomologist, Colorado State University, Fort Collins, Colorado.

MEMBER

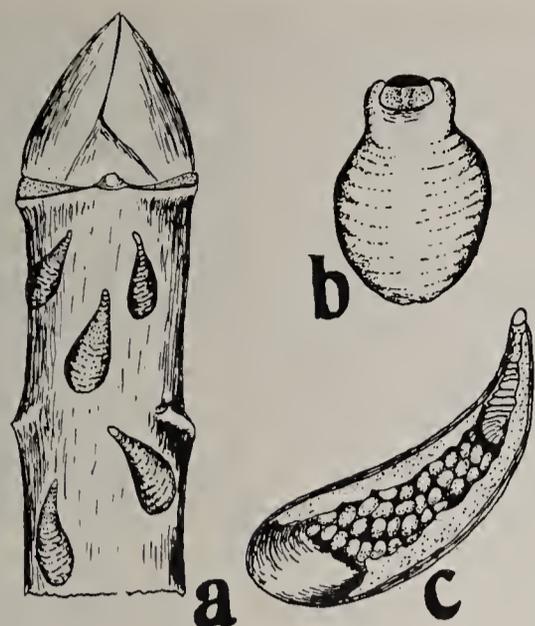


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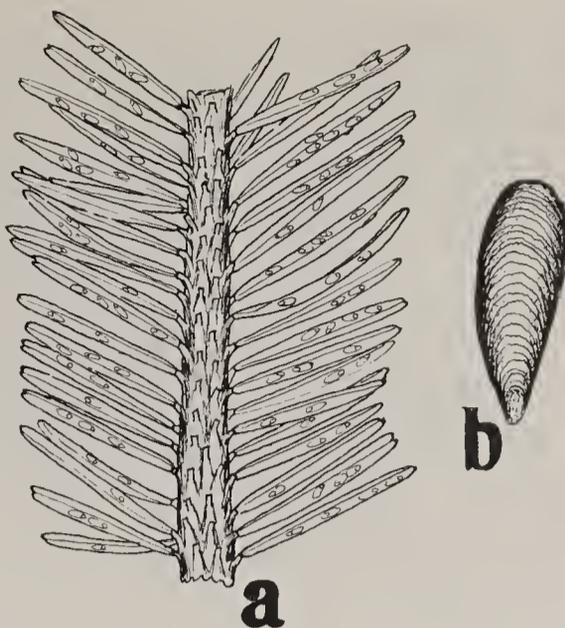
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OYSTERSHELL SCALE

- a. Adult scales on twig.
- b. Newly hatched nymph.
- c. Eggs under an old scale.



PINE LEAF SCALE

- a. Spruce twig infested with scale.
- b. Greatly enlarged scale.

scale. Spray when temperatures are over 50° and early enough so that the spray is dry before sundown.

Other important scale insects such as San Jose, Putnam's or Howard's scale are often found on shrubs. These are very closely related and they are much more difficult to see with the unaided eye. They are gray in color, about 1/16 of an inch in diameter and are slightly raised in the center. They may appear as scurf on the bark. Control for these is relatively the same as for oystershell scale but use only one-half the amount of oil.

Pine leaf scale, a common pest of pine, spruce, and fir, can be very serious if neglected. Sometimes needle-kill, caused by the feeding of the scale, is very serious and can ruin valuable trees or shrubs. This scale is white, motionless, about 1/8 inch long, and is easily recognized on the needles. Because evergreens are easily injured by oil, perhaps you should employ a qualified custom spray company for this job.

Aphids of many species are also early residents in the garden. Almost every flower, shrub, or tree is attacked by aphids at one time or another. One of the earliest plants to become infested is the snowball. Control is not

too difficult unless you wait until the aphids become protected by the rolled leaves. Then, control is almost impossible. Currants also are attacked early and the aphids cause the leaves to curl. April is too early for the rose aphid but it surely will appear soon thereafter.

Malathion is one of the safest insecticides for home gardeners to use for aphids. It is quite effective and will also kill leafhoppers, an early pest of roses and crabapples. Use 55-57% malathion at 1 teaspoon per gallon of water. Later, fungicides for mildew control may be added when needed.

April is usually the time when cutworms renew their activity. Most cutworms overwinter deep in the soil and are about one-half grown. They have a voracious appetite after overwintering and often destroy many plants by cutting them off at the ground line. Transplants, whether flowers or vegetables, are especially susceptible. It is probably safe to assume that most garden soils do contain some cutworms even if you don't see them while preparing the soil. Chlorinated insecticides, such as Chlordane, Toxaphene, Dieldrin, Endrin, or Heptachlor are quite effective in control. One of the easiest methods is to use the

granular form of the insecticide, applying it to the soil surface, and then harrow it into the top inch or so of soil ahead of planting. One-half pound of 5% granules will treat 1,000 square feet of surface. Spray or dust may be used but the rate of application will vary with the insecticide selected. Follow directions on the label.

EQUIPMENT

Dusters:

Hand-plunger type dusters may be used but they are quite laborious if the garden is large. Bellows dusters or rotary dusters are much more satisfactory; however, they cost considerably more. They will last several years if they are cleaned after each use and are oiled periodically.

Sprayers:

Compression tank sprayers, 1 to 3 gallon capacity, are quite satisfactory for most gardens. These corrode easily and therefore should be cleaned thoroughly after each use. Be sure to hang them upside down so that they will dry. With proper care they too will last several years.

Garden hose spray attachments are usually satisfactory but they should be calibrated frequently to make sure they are delivering an adequate amount of insecticide. Calibration is simple. Place in the sprayer jar the proper amount of liquid for 1, 2, or 5 gallons of mixed spray. Then spray into a bucket until the sprayer jar is empty. Measure the total amount of spray in the bucket and you will know the approximate accuracy of the sprayer.

Caution: Do not use your weed sprayer for insecticides. It is advisable to have separate equipment. No matter how carefully you clean your weed sprayer, some residue is very likely to injure tender plants if you use it to apply insecticides.

As you read your March issue of "The Green Thumb", you may be gazing at snowflakes outside. Who can predict Colorado's weather during March, April and May? Maybe the insects are not active today, but they are ready and waiting. Will you be ready?



CACTI AND SUCCULENTS HAVE PERSONALITY PLUS

CHARLOTTE A. BARBOUR

Recently I had the pleasure of visiting Mrs. Elizabeth Eckstein at her home in Golden, Colo. Mrs. Eckstein, formerly of Lakewood and Evergreen, has probably the best individual collection of cacti and succulents in this area. They are kept in the modern version of a greenhouse, a room attached to the dwelling with a tinted plastic roof and glass windows. "They love it", said Mrs. Eckstein. "During our recent move they had to wait in the cellar for their room to be completed; there they moped and drooped and even threatened to die! But as soon as they were installed in their new home they showed their joy and gratitude by beginning to grow and

bloom during what should otherwise be their dormant winter period."

"We cactus and succulent collectors do not, however, cultivate these strange and fascinating plants exclusively for their bloom," said Mrs. Eckstein. "They are interesting at all times because of their shapes, their color, their habit of growth, and especially in the infinite variety of their spines." Cacti boast spines in green, yellow, red, and white; some are straight, some curved, some woolly, some wiry or a combination of them all.

The most familiar type is the Mamillaria or pincushion cactus. They are generally globular in shape but are varied into many extraordinary hues



Part of the cactus and succulent collection growing in the home of Mrs. Elizabeth Eckstein.

and tricky ways of developing their shapes. The taller, columnar cactus has forms that range from slim wisps to sturdy, club-like stalks. The spines are usually arranged in rows up and down the "ribs", or convolutions. Yet Mrs. Eckstein has an unusual pair, she calls "the old man and woman", which are covered with long white hairs hanging down like a veil. Compare Mammillaria with the Opuntia. One type of the latter has pear-shaped, flat stems, another much elongated and cylindrical stems.

Another plant, the Pereskia, is a primary type, a "bridge" between cacti and other succulents, which bears leaves and blossoms like a wild rose. Then there are the orchid cacti, Epiphyllum, of which the Christmas Cactus is one. They grow right along with true orchids in the Rain Forests of Mexico where moisture is abundant. Just to simplify matters, in all these varieties occur the freaks or monstrosities called "crested forms", achieving angular convolutions, size, and pigment—weird but beautiful.

Across the aisle in Mrs. Eckstein's cactus room, away from the windows and more sheltered from the direct sun are the succulent Euphorbias. None of them are native to the western hemisphere, which is the kingdom of the cacti from Canada to Chile. Take note that all cacti are succulents, but not all succulents are cacti—whew! Euphorbias originate largely from South

Africa and, like the cacti, include manifold varieties: The Hoya, a straggling vine with vivid, tiny, waxen blossoms of exquisite odor; the many Haworthia, some species of which grow so close to the ground that collectors cannot see them, only feel them with their bare feet; others looking like very miniature Agaves with maroon spikes; yet others with translucent leaves; the Medusa and the Echeveria with profuse tendrils.

So, on and on, in diversity and interest through hundreds of specimens.

How do cactus and succulent collectors collect their specimens? "In three ways", said Mrs. Eckstein, "Go on collecting trips, exchange specimens or purchase from the regular commercial houses which are found in California, our southwest, England, and Japan."

The good news? Best of all, once in the right surroundings, (there are many hardy Colorado Cacti that grow outdoors) these collections require relatively little service from their owner. The service includes regular watering but not frequent. Three applications of spray per year with an oil-based spray, to combat mealy bugs. In the summer, occasionally a refreshing spray of plain water to remove dust. I have an inkling, however, that a great deal of understanding and affection is given to this particular collection.

THE ANNUAL DINNER—A GALA AFFAIR



Dr. John P. Baumgardt, left, director of the Kansas City (Mo.) Garden Center, talks with Lawrence A. Long, center, president of the Denver Botanic Gardens, and Mrs. Ed. G. Honnen, a trustee of the Botanic Gardens, at the annual dinner held Feb. 12 at the Denver Country Club.

The first annual dinner of the Denver Botanic Gardens was held on February 12 at the Denver Country Club. This was a continuation of the tradition established by the Colorado Forestry and Horticulture Association. Chairman of the dinner was Mrs. Ben Stapleton, Jr.

After a cocktail hour beginning at 6:00 p.m., dinner was served. A total of 222 members and guests were in attendance. The dinner menu included a luscious $\frac{1}{2}$ chicken served with curried rice, baked spinach, relishes and hot rolls fresh from the oven. The dessert was the highlight of the meal, a baked alaska served in a flower pot. Protruding from the dessert was a twig bearing red crepe-paper flowers and a label having clever pseudoscientific names (derived from the names of prominent members) such as *Pesmanius nativus*, after M. Walter Pesman; *Archangelus waringus*, after Mrs. James Waring; *Barbouria charlottia*, after Mrs. Charlotte Barbour; *Rosa*

maclisteria after Mrs. Frank McLister; *Churchillia owensis*, after Mrs. J. Churchill Owen and, many others. Dessert decorations were prepared by a committee headed by Mrs. William H. Crisp.

Table decorations were prepared by Mrs. Fred Newton and consisted of red balloons enclosed in Valentine's Day "jackets".

Immediately after the dinner, president Lawrence Long conducted a drawing using the numbers that corresponded to the ticket stubs of each person in attendance. Twenty-five bottles of perfume were given away, several books on France, a bottle of French rosae' wine and a bottle of champagne. The drawing prizes were donated by the French Consule General, M. Claude Batault.

After the feast, a talk accompanied with slides, was given by Dr. John P. Baumgardt, Director of the Kansas City (Missouri) Garden Center. Dr. Baumgardt emphasized the importance of a botanic garden in an area such as Denver stating that a botanic garden is . . . "a cultural asset" . . . to a city and can be considered a . . . "\$2.00 return from a \$1.00 investment."

Referring to the Denver Botanic Gardens, Dr. Baumgardt said That . . . "few botanic gardens are as new as Denver's . . ." and emphasized that the modern trend in the development of a botanic garden is to give attention to the field of research, placing "beautiful garden displays" second in importance.

Among the slides shown by Dr. Baumgardt were views of the trial gardens of the Royal Horticulture Society in London, the Kew Gardens in England, the "Blinden Garten" in Germany and several gardens in Austria and France.

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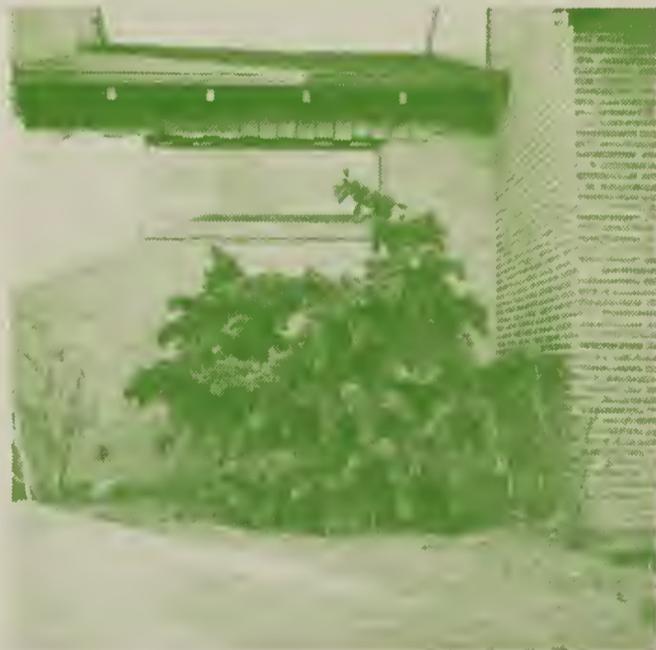
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The Green Thumb

Magazine for Rocky Mountain Gardeners



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APRIL,

1961

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APRIL

The Green Thumb

Vol. 18

No. 3

To conduct research on plants, both native and exotic, in varied plant zones of our region, to evaluate their economic, medicinal and horticultural potentials.

To coordinate the knowledge and experience of botanists, horticulturists and gardeners.

To educate the public in the best use of horticultural materials.

To maintain a large collection of plant species and varieties for study and display.

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Editor

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Members



Calendar of Events

Every Saturday Morning — 9:10 a.m.
KLZ Radio. Various Gardening
Topics by Herbert Gundell, Denver
County Agent.

Every Saturday Afternoon — 4:30
p.m. KLZ TV Channel 7. Gardening
Program by Herbert Gundell.

At Botanic Gardens House, 909 York

April 4 — 8:00 p.m. Tree Class.
Topic: Soil and Trees. Mr. Seiji
Horiuchi.

April 10 — 10:00 a.m. Judges' Council.

April 11 — 10:00 a.m. Herbarium
Study Group. Mrs. Kalmbach.

4:00 p.m. Citizens' Park & Shade
Tree Committee.

7:30 p.m.—Evergreen Garden Club.

April 12 — 4:00 p.m. Childrens' Garden
Group Meeting.

April 13 — 7:30 p.m. Rose Society.

April 18 — 8:00 p.m. Tree Club
Topic: Tree Leaves. Dr. A. C. Hildreth.

April 19 — 9:30 a.m. "Fun with
Flowers" Workshop.

April 20 — 10:00 a.m. "Around the
Seasons" Garden Club.

April 21 — 7:30 p.m. Botany Club
7:30 p.m. Landscape Contractors

April 24 thru April 26 — 8:30 a.m.
State Flower Show School. Mr. M.
Seastone, Chairman, Herbert Gundell
and Bernice Lang, instructors.

May 1 — 9:30 a.m. Junior Committee.
Mrs. Brown.

May 2 — 1:00 p.m. Mountain View
Garden Club Luncheon Meeting.

May 3 — 7:30 p.m. Botany Club.

May 4 — 7:45 p.m. Orchid Society

May 5—2:00 p.m. Civic Garden Club
Presidents' Tea

7:30 p.m. Landscape Contractors

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STILL TO COME ARE SUCH AUTHORITATIVE SPEAKERS AS:

MONDAY, APRIL 3

Mr. Carl Jorgensen, Professor of
Horticulture at Colorado State
University. Subject: "Modern Trends
in Landscaping."

MONDAY, APRIL 10

Mr. George A. Beach, Professor of
Horticulture at C.S.U. Subject:
"What To Plant—and How."

MONDAY, MAY 1

Mr. Gordon Mickle, Extension Entomologist at C.S.U.
Subject: "Yard and Garden Insects and Their Control."

MONDAY, APRIL 17

Dr. Donald Johnson, Agronomist
at C.S.U. Subject: "Our Living Soil"—
preparation and fertilization.

MONDAY, APRIL 24

Dr. A. C. Hildreth, Director of the
Denver Botanic Gardens. Subject:
"Flowers You Fancy"—flowers which
grow best in Colorado.

NOTES AND NOTICES

THE DENVER TREE MEN'S ASSOCIATION held an election meeting on February 14 at the Montclair Community Center. The following were elected for office: Russ Wiess of Marshall Nurseries, president; William Beebe of Colorado Tree Experts, vice president; Lee Chambers — tree surgeon, secretary and Henry Norden of Denver Forestry and Landscape, treasurer.

NEW HERBARIUM COMMITTEE MEMBER — Sue N. McLane of Craig, Colorado is a new member of the Kathryn Kalmbach Herbarium Committee.

QUESTIONS AND ANSWERS — Beginning in the May issue of *The Green Thumb*, a question and answer column will appear—if we obtain enough questions from you, the reader. Send in your questions now. Those of general interest will appear in a future issue with the name of the person asking the question and, of course, the answer.

BOOKS AND BOOKLETS FOR SALE — The following books and booklets may be purchased in the office at the Denver Botanic Gardens House, 109 York Street:

around the Seasons by S. R. DeBoer	\$1.00
Meet the Natives by M. Walter Pesman	spiral binding 3.60
	regular binding 3.00
Mountain Wild Flowers, a museum pictorial	1.25
Colorado Evergreens by Robert E. More	2.50
How to Grow Good Gardens in the Sunshine States by George Kelly.....	
	spiral binding 3.25
	regular binding 3.00
Loga of a Forest Ranger by Len Shoemaker	5.00
How to Identify Plants by H. D. Harrington	3.00
The Secret of the Green Thumb by Henry and Rebecca Northen	5.00
Twig Key (Identification of trees and shrubs in winter) by William Harlow	0.60
Fruit Key (Identification of plants by their fruit) by William Harlow	0.60
What Tree is This by the Denver City & County	0.25
Nature Games by Nesbit.....	0.60

S. R. DE BOER PRESENTED THE DISTINGUISHED SERVICE AWARD — The Distinguished Service Award of the American Institute of Gardeners was presented to S. R. De Boer at a recent meeting of that organization in Chicago. This award was granted for his pioneering work in the field of city planning and the creative and original ideas that he developed. Many of these innovations have been adopted throughout the nation. (See the March, 1957 and October, 1959 issues of *The Green Thumb* for articles concerning some of his work.)

HARRY M. SWIFT PRESENTED AWARD FOR HORTICULTURAL ACHIEVEMENT — The Colorado Nurserymen's Association presented an award for Horticultural Achievement to Harry M. Swift for his pioneering work in the propagation of native trees and shrubs for use in landscape plantings. (For more information concerning Harry Swift see the article by Ruth Ashton Nelson on page 95 of this issue.)

THE DENVER ROSE SOCIETY — The treasurer of the Denver Rose Society presented a generous check to the Denver Botanic Gardens to be used for operations of the Botanic Gardens House.

(Continued Next Page)

DR. AND MRS. WILLIAM C. STEERE VISIT THE DENVER BOTANIC GARDENS — Dr. and Mrs. William C. Steere of the New York Botanic Gardens recently visited the Denver Botanic Gardens. Dr. Steere is the director of the New York Botanic Gardens.

WELCOME WAGON — Welcome Wagon, Inc., is distributing about 700 copies of The Green Thumb each month to new homeowners.

FLORAL ARTS CLASSES — Floral Arts Classes are being conducted at Opportunity School each Thursday thru June. Three classes are held each week; 9:00 a.m., 10:30 a.m. and 6:30 p.m. Mrs. Bernice Lang, Instructor.

MILE-HIGH GARDENING PROGRAM — Beginning April 4 and every Tuesday thereafter for 13 weeks, Channel 6 — KRMA-TV will present a gardening program entitled "Mile-high Gardening." George Kelly of the Cottonwood Garden Shop in Littleton, Colorado will act as host. Sponsors of the program are; Alameda Nursery Inc., Belmont Electric Service, Creative Gardens, Marshall Nurseries, Roberts Nursery and W. W. Wilmore Inc.

LECTURES ON GARDENING AT THE DENVER DRY GOODS COMPANY — A series of lectures on gardening will be held in the Tearoom of the downtown Denver Dry Goods Co. Store beginning Monday, March 27 at 7:15 p.m. and every Monday thereafter thru May 1.

LIVING SCREENS FOR THE VALLEY HIGHWAY—Howard H. Hays, Maintenance Superintendent of the Colorado Department of Highways, has reported that \$3,000 worth of trees and shrubs are being planted along the Valley Highway System. Two thousand Russian-olive trees are being planted between E. Iliff and E. Hampden Avenues and between S. Colorado Blvd. and S. Steele Street to screen noise and lights from residential areas along the highway. In addition, 125 6'-7' upright junipers are being placed at major interchanges.

FIESTA AND PLANT AUCTION

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TABLES ON THE LAWN FOR THE THIRSTY AND A PANCAKE GRILL FOR THE HUNGRY

Rare things, old things, useful things

COME ONE, COME ALL AND ENJOY THE FIESTA!

JOHN S. BARROWS

FOREWORD

Robert E. More, who wrote this appreciation of our friend, the late John Barrows, reveals for the first time the names of the personages who enlivened *The Green Thumb* during the 1940's under the nom de plume of "Quercus" and "John Stockbridge." These battles of wit, gardening lore, and botanical knowledge had all Green Thumb readers chuckling and guessing the real names of the authors. The editor during that period, George Kelly, kept it a well guarded secret.

If you want some good reading may I suggest that you consult the eleventh-year index of *The Green Thumb* (Vol. 11, No. 12) and look up the Quercus and Stockbridge contributions. Incidentally, you will be gratified to see the abundance of excellent gardening, horticulture and landscape articles illustrated with good pictures, many of which were taken by George Kelly.

Also, new members unfamiliar with Robert More's contributions to horticulture in Colorado are referred to his biography in the August, 1958, issue of *The Green Thumb*.—Fred. R. Johnson.

John Stockbridge Barrows died December 18, 1960. Statistics of his life—his education, his newspaper career, his war service, his advertising business—have been noted in the press. But Jack Barrows will be remembered as an extraordinarily warm, charming, brilliant and wholly different individual, and not in terms of statistics.

I played with Jack's Anchor building blocks when I was five, and he was caught, went fishing with him four years later, and wholly enjoyed for more than sixty years thereafter his wit, whimsy, gentleness and gentility, and his frolic sense of ceremony," as Tom Merrill aptly described one of Jack's most characteristic traits.

Jack was tremendously interested in plants and gardening, and in the activities of The Colorado Forestry and Horticulture Association. Frequently, when a pungent notice of annual meeting was needed, Jack's pen would be drafted. He was on the Publicity Committee at one time, with Fred R. John-

son, and ghosted many an appeal for membership. When, in July 1944, I sent my first "Quercus (Queer-Cuss) Quips" to editor George Kelly, it sparked Jack to send to *The Green Thumb* in September, "Contented Earthworms Make Contented Gardeners—Or Is It Vice Versa?" Jack signed it "John Stockbridge," and as I knew his middle name, I spotted the new contributor at once. Quercus made a sharp attack on native flowers and plants (always favorites of Jack's) in the same issue, hoping to hear from "John Stockbridge." And how he tore Quercus apart in November in his "Found: The True Poison Oak!" Any Green Thumber can get chuckle upon chuckle by going to our library and reading Jack's spirited defense of "natives." Jack wrote the last, and best, offering of Quercus. There had been suggestions that Quercus make a personal appearance at the annual meeting and George Kelly received a letter from Quercus accepting an invitation to "appear and speak." I tried to

Gardening may be divided into three species — kitchen-gardening — parterre-gardening — and landskip, or picturesque-gardening: which latter . . . consists in pleasing the imagination by scenes of grandeur, beauty, or variety. Convenience merely has no share here; any farther than it pleases the imagination."

—William Shenstone, 1764.

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CARE AND MAINTENANCE OF LAWNS¹

CHARLES M. DRAGE AND GEORGE BEACH²

A beautiful lawn is a good investment. For the time, money and effort required, few home improvements pay greater dividends in satisfaction and actual increase of property value than well-tended lawn.

If your lawn is to continually improve and to give you lasting satisfaction, you must give it faithful care. The result of proper fertilizing, watering, and mowing can be a beautiful weed-free turf. The thick, velvety texture and uniform green color of the well kept bluegrass lawn are the goals of every Colorado home owner.

Turf authorities agree that the poor lawn is the most troublesome. Sometimes it is even the most expensive. That's because it may be necessary to plant again, possibly during the following year. With these thoughts in mind, we offer the following suggestions for the home owner who desires to establish a long-lasting, excellent lawn.

these materials should remain in the first foot of soil.

Next, establish a "rough grade" by filling repeatedly and soaking all areas where there are trenches for utility lines. This will cause the soil to settle to a uniformly firm surface. Unless this is done, high and low spots will appear after the grass is established.

There are places where a perfectly level lawn is the only practical grade. But where conditions permit, a gently sloping surface is the most pleasing and natural. Large expanses of perfectly level lawn give a stiff, strained effect which is never found in nature. The ideal drainage situation is a surface sloping gradually away from the home in all directions.

SOIL PREPARATION

Colorado soils are generally quite low in organic matter. Sub-soil left on the surface and frequently called "builders" or "contractors" soil may contain only trace amounts of organic matter. Therefore, the safest procedure is to work large quantities of organic matter into the upper 6 or 8 inches of soil. Organic materials include animal manures, peatmoss, leafmold, compost, sludge or various mixtures of these materials. The organic matter should be applied at a rate of not less than 2 cubic yards per 1,000 square feet of area (this is equal to a solid layer two-thirds of an inch deep).

It's best to "fortify" the organic material with 15 to 20 pounds of P_2O_5 (or phosphate) per 1,000 square feet. And, if the soil is sandy, 15 to 25 pounds of K_2O (or potash) should be added. Or you may use 200 pounds of a complete fertilizer high in phos-



PREPARATION OF SITE

Site preparation includes the cleanup and removal of debris, not only on the surface but also that which is buried at shallow depths. Remove rocks and building materials such as plaster, cement and stone. None of

¹ Reprinted, in part, from Bulletin 452A and Circular 197-A, Colorado State University Extension Service, Fort Collins, Colorado.

² Horticulturist, Extension Service, and Horticulturist, Colorado Agricultural Experiment Station, respectively, Colorado State University, Fort Collins.

phate—such as 4-12-4 or 5-10-5—per 1,000 square feet of surface. This type of application provides ample nitrogen and usually a sufficient amount of potash even on sandy soils.

Considerable raking will be needed to level the soil. After the site is rolled, low spots may be detected. These may be filled by continual raking. One caution: clay and clay-loam soils must not be worked when wet because they tend to clod and dry into hard, compact masses.

INSURE A GOOD STAND

Seed - Mulch - Water - Feed - Mow

For a good turf, a single grass is better than a mixture. And bluegrass has demonstrated that it is the best variety for the average home lawn in Colorado, assuming that water is available for irrigation.

In figuring the amount of grass seed to use, first compute the number of square feet in the area you plan to seed. Then buy seed of high purity and high germination. If the seedbed is properly prepared and maintained, three pounds of quality seed are sufficient to provide an excellent stand of grass on each 1,000 square feet.

The best time of the year to sow bluegrass is from August 15 to September 15. Seeding at this time allows you to “get a jump on the weeds” because sod that is developed in the fall is able to compete with the next spring’s weeds much more favorably than sod from spring-sown seed.



Fall sowing also gives greater opportunity to do a thorough job of soil and seedbed preparation. Weeds are seldom a problem. If fall sowing is not practical, the next best time is early spring. March is preferred over April, if the soil can be properly prepared that early. Competing spring weeds can be controlled by soil treatment with various chemicals before planting. One of the best is calcium cyanamide which may be spread evenly over the prepared seedbed at the rate of 50 pounds per 1,000 square feet. The chemical should be applied about two weeks before the grass is seeded and the surface of the seedbed should be kept moist in the intervening time.

Apply the seed evenly on the surface by using a previously tested spreader or by hand. With either method, divide the seed into two equal parts, and sow one-half of it by going across the area from north to south. Plant the other half by walking across the area east and west. A wire broom or rake, pulled lightly over the surface following the seeding will do a good job in covering the seed.

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The mulch should be applied immediately after seeding to hold the seed in place and to help keep the surface moist. The mulch should be from one-eighth to one-fourth inch deep. Possible mulching materials include finely granulated peatmoss, leaf-mold, compost, sawdust or straw.

Straw is sometimes an objectionable material because it blows off easily leaving some spots bare and others too deeply covered. It may also blow into neighboring yards. Straw also may contain weed or crop seeds. The same is often true of animal manures.

The mulch should be sprinkled immediately after it is applied and then kept moist until the seedlings are established. This may require twice-a-day watering. Always use a fine mist or spray to prevent the soil or seed from washing away. When the seeds begin to germinate, the intervals between watering should be increased gradually.



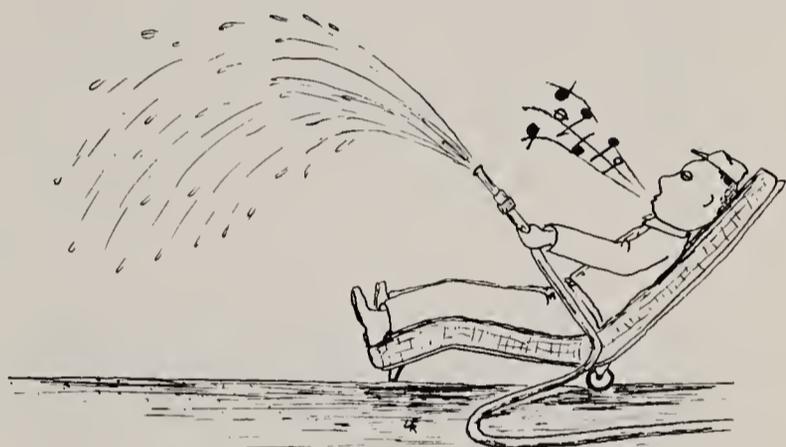
When the grass reaches a height of 1½ inches, clip off a half-inch. On future mowings, clip about a half-inch, leaving the grass about 1½ to 2 inches high.

FUTURE CARE

Your fertilizer program should provide from 4 to 6 pounds of available nitrogen per year for each 1,000 square feet. Divide the fertilizer application into two feedings when 4 pounds of nitrogen are used and into

three feedings when the 6 pound rate is used. The best times for applying the fertilizer are, (1) when the grass starts to green up in the spring, usually in April and, (2) in late August. When three feedings are made, the second feeding should be about six weeks after the first.

A "complete fertilizer" is one that will contain phosphate, and perhaps potash, in addition to the nitrogen. Phosphate and potash, when needed, will make grass darker in color, more sturdy and disease-resistant. The complete fertilizer should be applied at a rate to supply the desired amount of nitrogen.



Your watering program should provide 1½ inches of water per week during the active growing season. Do not water established grass more often than every three or four days. On well-established, deep-rooted grass, once every week or ten days may be enough. Avoid frequent, light waterings.

When mowing leave grass from 1½ to 2 inches high after mowing. Clippings can be left on the lawn if they are not heavy and long.

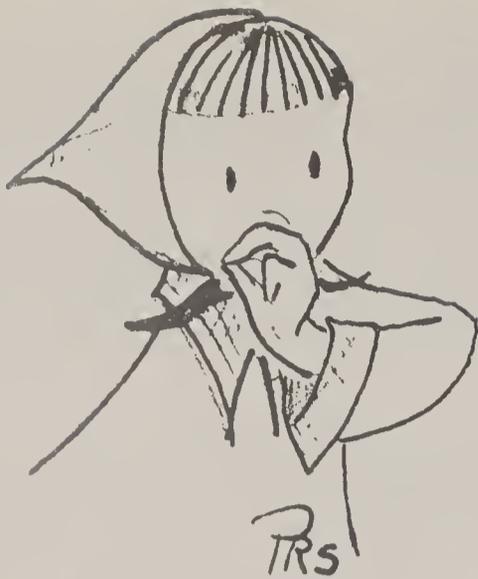
Remember—weeds are not a problem in lawns that are vigorous, healthy and properly cared for.

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Pete Ponders

Dear Pete:

I've heard there's a liceless snowball so fragrant its aroma is discernible a block away. Can you tell me the name of such a plant, and will it grow here?

Sniffer

Dear Sniffy:

Viburnum carlesi is probably your jewel. The specimen that "scent" me grows on the north side of South High (I'm not confused, are you?). Seemingly equipped with a bug repellent, this medium height shrub has foliage similar to Wayfaring Tree, *Viburnum lantana*. An improved species is *Viburnum carcephallum*, more vigorous in growth with blossoms almost as fragrant as *V. carlesi*. Both species have thrived for me on a northeast exposure. *V. burkwoodi*, Koreanspice, while not as fragrant as *V. carlesi*, will grow under similar conditions.

(For more information on *Viburnums* read George Kelly's article "Plant Profiles", March, 1961 issue of *The Green Thumb*. — Ed.)

Dear Pete,

On the Look and Learn Garden Tours last year I saw a lovely blue-green serpentine-like plant growing in a rock wall. It wasn't a sedum. The name sounded like a trousseau item — in fact, that's what the expert giggled.

WishINu

Dear NowUNo,

From your description the plant may be *Euphorbia myrsinites*, a spurge. An excellent perennial for the rocker or for a ground cover, because it retains that luscious foliage throughout the year, and its yellow bloom at the tip of each stem appears in February and early March. Let me caution that in picking off seed heads or picking blossoms, beware of the milk-like sap — it may burn the skin, or if rubbed near the eyes it may make them puff. It's worth the precautions.

Dear Pedro:

I want a good grass to grow under my precious shade tree. Maybe we could practice the carioca there, No. Needa Shade

Dear Needa:

Decisions! Decisions! Some experts say, "Choose which you want, tree or lawn."

Henry Gestefield had great success at Fitzsimons hospital grounds with Redtop. Even the horses' frolicking in the area failed to deter it. Others consider Redtop a short-lived grass and recommend Illahee Fescue, a finer bladed grass. Meadowgrass, which is coarser, will survive.

If you like to live modern you might enjoy an all-weather cover such as flagstone, crushed rock or wood blocks.

Some of the ground covers—ajuga, pachysandra, myrtle or English ivy are suitable substitutes for grass. They are usually available at the plant auction. This year's May event will be staged in living color under the title—Fiesta!

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PLANT PROFILES

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CUTLEAF SUMAC

Most gardeners are familiar with the very common Staghorn Sumac *Rhus typhina*, which grows quite tall and has such a brilliant red fall color. A few are becoming familiar with the Eastern Smooth Sumac, *Rhus glabra*, and its dwarf counterpart, the native Rocky Mountain Sumac, *Rhus cismontana*. Some have even come to recognize others in the genus, such as the native Inkbush Sumac, *Rhus triloba*, or the Black sheep of the family, the Poison Ivy, *Rhus toxicodendron*.

Few gardeners know or use the cutleaf forms of these familiar plants, such as the Cutleaf Staghorn Sumac, *Rhus typhina laciniata*, or the Cutleaf Smooth Sumac, *Rhus glabra laciniata*.



CUTLEAF STAGHORN SUMAC

The Cutleaf Staghorn Sumac (here illustrated) does not grow tall and passive like the regular Staghorn, but tends to sprawl and curve, seldom

getting over 4 feet in height. This gives the plant a distinctive appearance, both in leaf and when bare in winter. It should be planted only where this informal character is appropriate. Since our gardens are showing more of the Japanese influence we often need these "character" plants for some special effect in a particular spot.

The fall color of the Cutleaf Staghorn Sumac is also distinctive in that it is more of an orange or pink than the brilliant red of the other sumacs.

The even less known Cutleaf Smooth Sumac is a still more dwarf plant with a habit much like the native species. It has brilliant red fall color and a delicate character, with its cut leaves, that is found in no other locally grown ornamental plant.

Unfortunately these interesting plants are not handled generally by nurserymen, but can be obtained if the gardening public demands them.

DESMODIUM

There is considerable confusion among authorities as to the correct botanical name for this plant, but it usually is called *Lespedeza bicolor*. It is a year-round shrub in the south but dies to the ground here each winter. Since it blooms in the fall this herbaceous perennial habit is no more objectionable than in the case of the Buddleias.

The plant usually sends up many stems to a height of about four feet. The stems are slender and tend to droop over giving the plant a graceful effect. In fall the stems are covered with

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FLOWERS OF DESMODIUM

many pink or purple pea-like flowers. While the flower color is difficult to harmonize with other colors, there are few others flowers in bloom at the time *Desmodium* is in bloom and it has the whole show to itself. The plant has a deep root system and tolerates very dry situations in our area. It definitely fills a place all its own in our Colorado gardens.

WAHOO EUONYMUS

The genus *Euonymus* offers many fine ornamental species. They range all the way from the tree-like European *Euonymus*, *E. europaeus* to the tiny creeping vine, *E. fortunei minimus*. In between we have the very useful Winged *Euonymus*, *E. alatus*, and the newly popular evergreen varieties.

Euonymus atropurpureas, the Eastern Wahoo, is a tall shrub in the Lilac-Viburnum class. It is often rather informal in shape but may be trimmed



FRUIT OF WAHOO EUONYMUS

to any desired form. The flowers are small and not conspicuous, but generally more attractive than those of most other *Euonymus* species. The fruit is the striking character of the plant. On selected types, the fruit may almost completely cover the stems and remain on over the winter. The color of the fruit is pink and orange, much resembling bittersweet. Another very valuable asset of this plant is the bright rose-red fall color of its foliage. Because of this uncomplimentary shade of red, this species should not be planted near Amur Maple and sumac, both of which have bright red fall foliage.

Eastern Wahoo is rather easy to transplant and tolerates a variety of our soils. It is inclined to sucker from the roots but this is not especially objectionable because it merely furnishes new plants to give to the garden-minded neighbors.

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HARRY SWIFT AND WESTERN NATIVE PLANTS

RUTH ASHTON NELSON



HARRY SWIFT IN HIS NURSERY ALONG SIDE
A ROW OF *BETULA FONTINALIS* SEEDLINGS.

Harry M. Swift was quite surprised and very gratified to receive the first award from the Colorado Nurserymen's Association for "Outstanding Achievement in Horticulture" (see notes and notices page 85). Only about ten years ago he became interested in growing evergreen seedlings and started attending the Nurserymen's meetings. For the first several years he sat quietly and attentively absorbing all he could on how to grow plants. About that time he had found himself in the nursery business. In spite of the lack of previous training in horticulture his seedlings were growing and he was thoroughly enjoying the venture. He listened to the experts and learned from such people as Dr. A. C. Hildreth, George Kelly, Bill Lucking, Bob More and many others.

Swift, who had grown up on a farm in Kansas, studied history and psychology. After teaching for two years he took a Master's degree in political

science at the University of Kansas and then spent thirty months in the Air Force after which he held a federal office position in Denver where, he says, his working time was spent in "shuffling papers". So he started building a home for his growing family. This occupied the weekends and vacations for nineteen months because he did all of the work himself. After it was finished he had time on his hands. The office job had become routine. One day he visited the Forest Service Seedling Nursery at Monument. He says he was given some discarded, 12-year-old seed of blue spruce and Douglas-fir which he took home and planted, "... instead of carrots". In spite of age most of the seed germinated and he soon had hundreds of seedlings which took up all of his garden space. He rented a vacant lot, obtained more seed, and raised more seedlings, finding a ready market for the tiny trees. (Cont'd Next Page)

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This was such interesting work that in 1959 Harry Swift left federal service and now devotes all his time to his Western Evergreen Seedling Nursery in which his wife, Pauly, is a working partner. Pauly handles the books, orders, and retail end of the business. In 1955 the Swifts moved to a farm about three miles east of Golden. Here there was plenty of acreage for the expanding nursery business and a comfortably large house for the growing family.

Then he began going into the mountains to collect his own seed of native cone-bearing trees. On these excursions in late summer and fall, being interested in seed, he noticed numerous deciduous shrubs and trees in fruit and soon he was bringing back many different kinds of seeds. Seed gathering excursions became family vacations. The Swift children helped in the collecting and Pauly presided over the campfire. Thus began his interest in growing native deciduous shrubs. To his delight he found several people in the Denver area who encouraged him to grow all the natives he could obtain.

Before this, three people interested in Colorado horticulture, D. M. Andrews, Kathleen Marriage, and George Kelly, had realized the value of our drought - resistant local flora and

worked to interest the public in using native shrubs and perennials in their gardens. They had collected native plants and seed which they offered to the few gardeners who asked for them and they wrote articles for publication in attempts to stimulate interest in these hardy species. Perhaps their efforts are bearing fruit today in the increasing demand for native plant material. But, until Harry Swift began growing these plants from seed on a large scale there was no adequate commercial supply available. It is a great achievement which the Colorado Nurserymen's Association has recognized in making its award to Harry Swift.

When I talked with Harry the year after he received the award he was modestly elated at this honor but I think he was even more enthusiastic over several flats of *Betula glandulosa* seed which had just germinated. I asked which species of the natives was most in demand. He answered, "*Mahonia repens* (Creeping Holly Grape) and many people ask for Aspen."

He is very enthusiastic about Cutleaf Mountain Mahogany, a valuable broad-leaf evergreen shrub which he has been testing for several years. Cowania is another evergreen which promises to be very desirable and Apache Plume which is semi-evergreen, has been proved satisfactory

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the Colorado Springs and Denver areas. A species that is already in demand is the Water Birch, *Betula fontinalis*. This he now has in quantity.

Many of the new suburban homes, of which Colorado has literally thousands, are modernistic in design and built on the mesas and foothills along the Front Range where the development of a conventional type of landscaping including lush green lawns, shrubbery borders and flower beds, is not only prohibitive in cost but out of tune with the architecture and natural setting. The owners of these places are welcoming this supply of hardy and appropriate plant material enthusiastically. Garden designers are equally appreciative as they discover the value of these drought-resistant species for the "low maintenance" plantings so much in demand today.

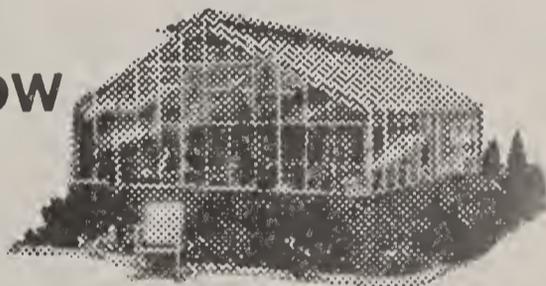
The value of using the native species for plantings on a large scale was emphasized at the U. S. Air Academy

where thousands of thimbleberry, sumac, wild rose, mountain privet, creeping mahonia, mountain mahogany, and kinnikinnic shrubs were set out on road embankments, bare hillsides and around buildings in the tremendous landscaping program carried on there.

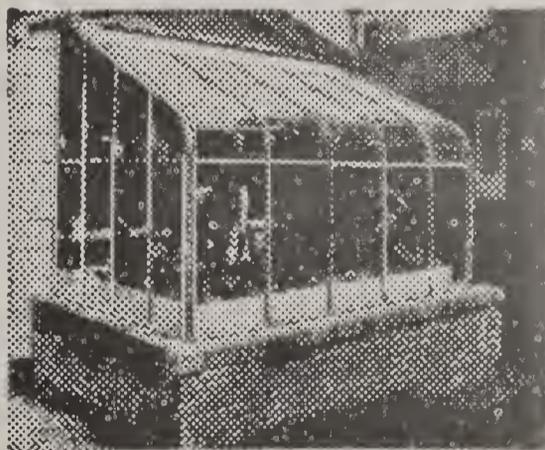
At last it is being recognized that these plants which nature has been evolving for generations as an adjustment to our dry, sunny, changeable climate, are the ones to count on for practical highway plantings, for erosion control and to beautify our modern, functional homes. Harry Swift has realized this and his efforts to develop a high class commercial supply of this native plant material has been recognized as a valuable contribution to horticulture in the Rocky Mountain region.

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Photo by Peter Ferman Photographer

MISSOURI BOTANICAL GARDEN

FRITS WARMOLT WENT

Director, The Missouri Botanical Garden

ABOUT THE AUTHOR

Frits W. Went was born at Utrecht, Holland, May 18, 1903, the son of Dr. F.A.F.C. Went, late Professor of Botany and Director of the Botanic Garden of the University of Utrecht. He was educated at the University of Utrecht, receiving a Ph.D. in 1927. From 1927 to 1933 he was Plant Physiologist at the Royal Botanical Gardens of Buitenzorg, Java; came to U.S.A. in 1933 as Assistant Professor of Plant Physiology at California Institute of Technology and promoted to Professor of Plant Physiology in 1935.

Dr. Went received an Honorary Doctorate from the University of Paris, is a member of the National Academy of Sciences (U.S.A.), the Koninklijke Nederlandse Akademie van Wetenschappen (Holland) and the Académie des Sciences (France) and numerous professional scientific societies.

He was awarded one of five Certificates of Merit conferred in celebration of the fiftieth anniversary of the founding of the Botanical Society of America at the University of Connecticut.

During his early years in California Dr. Went worked on hormonal control of plant growth. His research interest gradually turned to environmental influences on plant growth, both in nature and experimentally by means of his unique Phytotron—a greenhouse laboratory with a mechanically controlled environment.

Dr. Went became director of the

Missouri Botanic Garden in 1958. In the following article (in three parts) Dr. Went describes the history and development of the Missouri Bo-

tanical Garden (Part I) and, in the May issue, the geodesic dome-shaped Climatron (Part II) and the educational program (Part III).

I. HISTORY AND DEVELOPMENT

The Missouri Botanical Garden, an area of 70 acres located in the center of St. Louis, was founded over 100 years ago by Henry Shaw a private citizen. The garden was his greatest contribution to the future of St. Louis, but he made many other donations to the city, such as Tower Grove Park, a 285-acre tract adjacent to the Missouri Botanical Garden, and the Henry Shaw School of Botany at Washington University, with which the garden maintains a close relationship. For those early days, the creation of the Missouri Botanical Garden as a private institution for public enjoyment, for botanical research and for the education of gardeners and students was most remarkable in view of the fact that practically all botanical gardens of those days were very restricted in their activities. But apparently Shaw was well aware that a botanical garden without research and educational facilities is only a torso, rather than a well-rounded, functional institution.

At his death in 1889 Shaw left his very considerable fortune as an endowment to maintain the garden in perpetuity, and to this end designated a self-perpetuating board of trustees, which administers the endowment and appoints the director, who operates the garden.

In the 100 years of its existence, the garden has made for itself an important place in the botanical world, and at present has one of the largest

herbaria as well as one of the most important botanical libraries in the United States. The garden itself, which, in Shaw's time, was a beautiful garden around his country estate, Tower Grove, gradually through the efforts of botanists such as Engelmann, Trelease, Moore, Edgar Anderson, and many others, developed a fine collection of tropical plants, which were kept in the extensive greenhouse ranges.

Whereas during the first 50 years, the endowment income was ample to maintain the garden, to develop its library and herbarium and to carry out botanical research work, gradually the endowment income lagged behind the garden's financial needs as a result of the enormous increases in the cost of labor and materials. For example, when Henry Shaw prepared his 1885 budget, he included therein the yearly pay for 24 gardeners at a total cost of \$8,000; and for the heating of greenhouses, orangeries and staff houses, a sum of \$900 (our present fuel bill is nearly \$30,000). Since the garden receives no financial support for operations from City, County, State or Federal Governments, the operations had to be gradually reduced until the physical appearance of the garden and greenhouses no longer conformed with the standards which must be maintained by a botanical garden. This was also evidenced by the decreased public interest in the garden, so that the annual attendance, which

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ran to approximately 400,000 persons thirty years ago, was gradually reduced to 155,000 in 1955.

At that time the trustees and director decided on a new course which would involve deficit budgeting, but it was hoped that an improved garden would attract sufficient public interest so that the deficit could be met with public contributions. This policy seems to be paying off, since the contributions made to the garden by private individuals and by an organization of "Friends of the Garden" have increased to more than \$50,000 per year in 1960 with income from the admissions to the new Climatron adding another \$100,000. Thus, it is hoped that soon the strictly gardening operation will be paying for itself, so that the endowment income can be used for research and education.

At present there are several botanical gardens and garden parks in Europe which are almost or wholly self-supporting, and we hope that the Missouri Botanical Garden will be the first of the American botanical gardens to reach this desirable goal. Of the three basic sources of support for botanical gardens—endowment income, public funds through tax revenue and contributions from those persons most directly interested—the latter seems to us the most desirable. There are today very few organizations rich enough to operate entirely from endowment in-

come. Tax support brings with it the implication that every citizen must pay a share of the institution's cost, whether or not he cares about its purpose. Direct support, in the form of moderate admission charges for selected features (there is no general admission to the garden), patronage of concessions, and annual contributions from those people who use and love the garden seem on the basis of our experience of recent years, to be a distinct possibility for the larger cities of America.

The Missouri Botanical Garden has almost two acres under glass and has an especially valuable collection of orchids (both hybrids and species) of Araceae and of succulents. During their 40-50 years of existence the greenhouses had deteriorated considerably and needed very extensive repairs. With the recent advances in the air-conditioning of greenhouses, it was deemed inadvisable to repair the old greenhouses, with the result that the garden has embarked on an ambitious rehabilitation program involving practically all of its greenhouses.

The first stage in this rehabilitation program was the replacement of the old Palm and Economic Houses with a larger, geodesic dome-shaped, Plexiglas-covered greenhouse, the Climatron.

(In the next issue, Dr. Went will describe the Climatron in detail.—Ed.)

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MORE THOUGHTS ON PRUNING

On page 69 of the March 1961 issue of *The Green Thumb*, Lee Chambers, tree surgeon, presented an article entitled "Briefing for Spring Pruning". In his article Mr. Chambers emphasized the fact that many of the trees in the Denver area and suburbs were incorrectly pruned, or, to put it in Lee's own words, "... the butchery that is so prevalent throughout this area" and ... The streets ... are literally lined with atrocities committed in the name of horticulture." The following photographs will tell their own story. They are typical scenes taken somewhere in the greater Denver area. Look around you, you will see similar examples.



Photos Courtesy of Fred Johnson

Now let's see what a good pruning job is by comparing "before and after pruning" photographs.



BEFORE PRUNING



Photos Courtesy of Lee Chambers
AFTER PRUNING

A few words of advice to the tree owner . . .

DON'T prune your trees yourself unless *you know how* to do it *properly*.

DON'T prune your own trees, especially large ones, without the *proper safety equipment*.

DO rely only on *reputable* tree surgeons to do the job. (The tree surgeons advertised in this issue *are* reputable.)

EXOTIC PLANTS—WHAT ARE THEY?

HELEN MARSH ZEINER

Plants are frequently referred to as “exotics”. To most people, this immediately brings to mind a picture of something beautiful and rare. Strictly speaking, however, exotic means “belonging by nature or origin to another part of the world; brought in from abroad; foreign; strange; as, an exotic flower”, or simply, “something not native”.¹ Exotic plants, then, are simply those not native to a region, and may be neither beautiful nor rare. Kentucky blue grass, for example, is an extremely common lawn and pasture grass and can also be found “growing wild” where it has escaped from cultivation and has become naturalized. Certainly no one could call Kentucky blue grass rare—yet it is an exotic, brought from Europe to the east coast of North America from whence it gradually extended its range wherever conditions were suitable for its growth. Now it may be found almost anywhere in the United States where it is moist enough for it to become established. Many of our common weeds are exotics—often neither beautiful nor, unfortunately, rare.

Definitions may tell us what exotic plants are, but they cannot tell the

¹ Definition from Funk and Wagnalls' New College Standard Dictionary.

stories behind these plants — tales which are sometimes commonplace sometimes exciting adventure stories which could compete with any fiction.

From earliest times people have been interested in plants—for food, for medicine, and for the plants themselves. Wherever man went, he saw plants. Sometimes they were different from those at home, and he took them back with him. He perhaps found them a pleasing addition to his diet, or felt that they might be useful in treating his ailments, or sometimes it was just because they interested him. Sometimes man went deliberately in search of plants, particularly for those which might fill a need. Thus even early man began to build up gradually a population of exotic plants.

This search for new plants has never stopped, and there are many people today who are busily hunting new plants for our pleasure or use.

Most of our house plants and many of our trees, shrubs, and garden flowers are exotics—not to mention the vegetables and herbs in the kitchen gardens. There are many interesting stories of how we came to have certain of these plants, most of which came with man's help from far away places. Other plants are transported to new locations quite by accident—seeds or spores may cling to superstructures of ships, to

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railroad trains, to automobiles, or even airplanes. Some of these are carried for very long distances before they drop to the ground, where they grow under conditions are suitable. Sometimes the seeds of exotics are mixed with shipments of other seeds, or are present in packing materials. No matter how accidental the introduction, they are still exotics. Many of these accidentally introduced exotics, as well as others which were introduced for a purpose but which have escaped and become naturalized, have become nuisance plants.

Plants which have been brought in by plant explorers have crossed only their first hurdle by reaching the new location. They arrive at conservatories, experimental gardens, or private collections, and are little more than collector's items until they prove themselves worthy of cultivation. Then they must be propagated successfully and in a quantity for market—often a long and tedious process.

In any part of the United States—indeed, in any part of the world—many of the ornamental plants are ex-

otics. The plains states have a very large proportion of exotics since the number of native shrubs and trees is limited as a result of the climate. Even the native mountain shrubs when brought down to the plains could be considered as exotics in the plains area.

In a series of future articles, some of the exotic plants to be found in Denver (and in other parts of the Rocky Mountain states as well) will be discussed. If you are interested in knowing the stories back of our common plants, watch for these articles.

If you would like to read some very interesting books on this subject, the following are suggested.

The World in Your Garden, National Geographic Society.

The Story of Gardening, Richardson Wright.

Man and Gardens, Nan Fairbrother.

Foods America Gave the World, A. H. Verrill.

Also manuals for identification of plants will give information on source of the plant.

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PART OF THE PETUNIA TRIALS OF 1960 CONDUCTED AT THE DENVER BOTANIC GARDENS.

1960 Petunia Trials

by the Denver Botanic Gardens

A. C. HILDRETH

The petunia is America's most popular annual flower. Nowhere does it seem more at home or develop better flower color than under the bright sunlight and cool night temperatures of our high-altitude climate.

Petunias have been cultivated for about 138 years. During that time many different plant forms, flower types and colors have been developed. The recent introduction of F_1 hybrids has brought a shower of All-America awards and has stimulated new interest in this plant. Such hybrids eventually promise to replace all old-type petunia varieties.

The bewildering array of petunias now listed in seed catalogs demands that we narrow the field so that gardeners of this region can be assured of superior varieties thoroughly adapted to our conditions. It was for this reason that the Denver Botanic Gardens, in

1960, undertook tests of petunia. Only single flowered types were included.

The trial grounds were laid out in plots, each containing 50 plants of one variety. In all, 132 such plots were grown. Plants were allowed to develop naturally without pinching. After eliminating duplications and mislabeling, 122 true-to-name varieties remained. These were judged by employees of the Botanic Gardens, by landscape architects and by professional and amateur flower growers.

It soon became evident that in evaluating a petunia variety, people divide themselves into two groups. One group is interested mainly in the appearance of the variety in mass plantings such as beds and borders — its general floral effect as a feature of a landscape. The other group is concerned chiefly with the excellence of

individual flower at its best stage of development and when viewed at close range.

For landscape effect a variety must bloom freely over a long season. The tinting should catch the eye, whether viewed from a long distance or close hand. The plants should be uniform in size and growth habit. Their flowers should be held well above the foliage where they can be seen readily. Whether the flowers are large, small or medium-size is not as important as the mass of color which the planting displays. Flowers must hold their color well despite our bleaching sunlight. The tinting on the outside of the "bells" must be pleasing so that when the flowers droop in mid-day sun or ripple in a breeze they still give a good color effect. Few people have time to pick off aging flowers from a large planting; therefore, the fading colors must not detract. New flowers should cover the withered ones—the plant should bury its dead.

To be properly appreciated an individual petunia flower must be observed in great detail. Therefore, people interested in decorative flower uses use them where close scrutiny is possible, e.g. in cut flower arrangements or for planting in pots, patio planters or in small groups beside a garden walk. Such varieties are judged primarily on the basis of the beauty of the individual flower and the interest it creates. The flowers should be large and the form should be decorative.

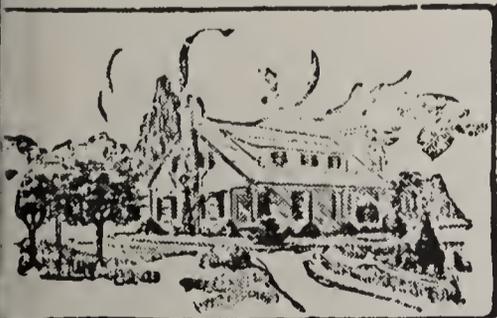
Ruffled, scalloped or fringed margins are preferred. Colors should be rich and have definite sheen. If two or more colors are involved they should not clash and color shadings should be delicate. Interesting markings in the "throat" are desirable. Veins in contrasting colors which emphasize the lacy patterns are much prized. Varieties having such decorative characteristics are often not very floriferous. Many decorative types are not at all suitable for mass planting to give a pleasing landscape effect.

Plant breeders have produced such utter confusion in the genus *Petunia*, that attempts to classify modern garden varieties according to botanical relationships are futile. Introduction of F_1 hybrids in the trade has made old horticultural groupings obsolete and no new classification has yet been adopted. To such old groupings as "Balcony" and "Bedding," seed catalogs have now added F_1 and F_2 Hybrid Grandifloras, F_1 Multifloras and even the illogical "Dwarf California Giants."

Grouping based on use has been advocated and this system probably would be of most benefit to gardeners. My suggestion for such a grouping of single petunias would be:

Dwarf Bedding: Plants 1 ft. or less high. For edging and for low bed plantings.

Standard Bedding: Plants over 1 ft. high. For mass plantings in beds and borders. (*Cont'd Next Page*)



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Balcony: Viney types, for hanging baskets or for draping over walls or planter sides. Also usable in beds and borders.

Decorative Flower Types not Suitable for Bedding: All sizes and types of plants. For cut flowers, pot planting, etc. where flowers can be viewed at close range. Of course bedding varieties having decorative flowers can also be used for such purposes.

These four groups can be subdivided according to flower size, shape, margins, color, etc. as desired.

In the 1960 trials there were indications that certain varieties rated highly in other parts of the country are not equally desirable under our conditions. Colors of some varieties fade to unattractive shades under our intense sun. In general, petunia plants tend to be shorter in our region than at low elevations, presumably because of the high content of ultra-violet rays in our high-altitude sunlight.

In this brief review of the 1960 trials it is not possible to discuss the merits and shortcomings of each of the 122 varieties evaluated. Only the better ones of each group can be indicated.

Bedding Varieties (Listed in order of desirability)

Dwarf Bedding:

White: Fringed Snowstorm, Popcorn, White Perfection, Lace Veil, Aristocrat

Red: Toreador, Fire Dance

Pink: Pink Desire, Maytime, Cherokee, Coral Satin, Prima Donna Improved

Purple and Bluish: Blue Mantle, Elk's Pride, Blue Magic, Mercury

Variegated: Sabre Dance, Twinkles

Standard Bedding:

White: Seafoam, Snowdrift and Paleface (equal), Breck's Giant White, Snowstorm

Red: Comanche Improved, Inca, Sioux, Aztec

Velvety Red: Matador, Flamboyant Velvet

Pink: Pink Velvet, Pink Sensation, Peach Satin, Fairyland

Purple and Bluish: Purple Watercolor, Bluebonnet, Royal Blue

Velvety Purple: Black Knight, Admiral, Neptune

Yellow: Yellow Gleam

Variegated: Calypso, Cavalier, Starkist, Howard's Star Improved, Elk's Star



CALYPSO

Balcony: Blue Wonder, Rose Wonder, White Wonder

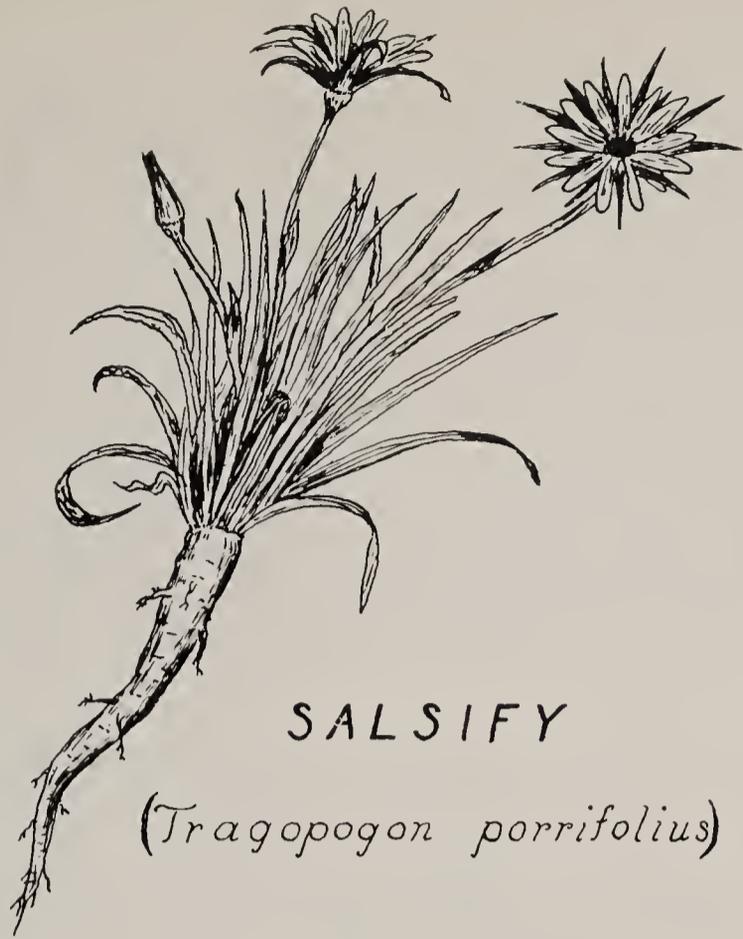
Decorative Flowers not Outstanding for Bedding: (Listed alphabetically) Apple Blossom, Blue Lace, Camilla, Copper Red, Crusader, Elk's Purple, Fire Chief, La Palma, Lavender Lace, Mars, Mauve Queen, Modesty, Rose Veil, Scarlet Lustre, Serenade, Tango, Theodosia

It should be remembered that this test has been conducted only one year and that later trials may change the ratings. Of course new varieties will be added to the 1961 trials. In any case the gardener will not go far wrong in planting the varieties which have thus far proved to be superior.

ATE

WINTER

TREAT



SALSIFY

(*Tragopogon porrifolius*)

KATHRYN KALMBACH

When making your list of seeds to order for your vegetable garden, why not include *Tragopogon porrifolius*, Salsify (also called vegetable-oyster and oyster plant) an old-time favorite now seldom obtainable in the markets.

Salsify is a close relative of the yellow-headed Goats-beard, *Tragopogon pratensis*, of our Colorado roadsides. The seed heads of this tall "weed", similar to those of the dandelion, should be familiar to everyone.

The vegetable salsify, whose flowers are purple, is grown for its long edible tap-root. It is easy to grow. Simply sow the seeds in early spring and thin the seedlings to 3 to 6 inches apart in the rows.

The roots of this plant will grow best in loose, sandy or humusy soil. Because the plant is a biennial, no flowers will be produced the first year, but the long narrow green leaves are attractive until frost.

The roots should be allowed to remain in the soil until the ground is thoroughly frozen to develop the delicate oysterlike flavor when cooked. After digging, the roots should be scraped, thinly sliced and cooked in boiling salted water until tender. Drain and add milk, butter and seasonings. Return to heat but do not let it boil after the addition of the milk.

Many old gardeners will remember this tasty addition to the late-winter table.

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Scoops By Scott

(Formerly — “Composting”)

MRS. JOHN SCOTT

“Abstract” is a newer look in flower arranging. It also gives an excuse for this poem from an unknown author about a Japanese Print:

“Simplicity
A curve for the shore
A line for the sea
A tint for the sky
Where the sunrise will be.
A stroke for a gull
A sweep for the main
A skill to do more
With the will to refrain.”

There's a simplicity about spring symbolism, too, that flower arranging can use. Being the youth of the year, spring colors are light and gay, with greens and yellows abounding. There's a minimum of plant materials, even with buds and branches, which might be used to impart individuality or the wonderment of life. With limited materials, line or line-mass design is desirable. Accessories or containers may be ceramic birds (always appropriate) and baby animals (with or without their mamas), small umbrellas, overboots, kite gardening gadgets, baskets, etc.



Photo by Art Gorn

BASE, DOOR MAT, PAINTED GREEN, AND HIGHLIGHTED WITH GOLD SPRAY.
CONTAINERS, WOODEN SHOES PAINTED TULIP RED.
PLANT MATERIALS, RED TULIPS AND RHUBARB FOLIAGE.
MECHANICS INSIDE OF SHOES COATED WITH PARAFFIN TO WATERPROOF THEM. PINHOLDER
CLAYED IN.

Special Spring Days include National Garden Week beginning April 22 in recognition of the birthday of J. Sterling Morton, the founder of Arbor Day. National Council is sponsoring another "day" this year known as "Wear a Garden Flower Week", June 1-7. Mrs. Hath, National Council's Executive Secretary says. "In the wearing of a fresh garden flower during this special week we shall be creating sentiment for lasting and universal peace." Corsage Clubs, this sounds made-to-wear for you.

Carnations are a favored corsage flower, reminding me that Colorado Flower Growers Assn., Inc. has this helpful hint concerning carnation arrangements with fruits, apples in particular, which give off ethylene gas, putting carnations to sleep in less than two hours. There are other fruits that give off this gas and other flowers that can't take it either. Exhaust fumes, faulty furnaces and gas stoves can also doom blooms.

The Sixth Annual Sterling Bowl Tournament, co-sponsored by Jackson & Perkins Company and the Sterling Silversmiths Guild of America, will be held June 21 at Newark, N. Y. This is the only national flower arranging competition. Fourteen contestants are chosen, two from each of seven geographical areas, from names submitted by state presidents. Mrs. C. C. Buckbee sent for consideration: Mrs. Budd A. Willetts, Mrs. Vane E. Schierbaum and Mrs. John A. Scott. States in competition with Colorado in the Rocky Mountain region: Kansas, Nebraska, Montana, South Dakota, Utah, Wyoming. Mrs. Geneva Clapp from Cheyenne was a regional winner last year and in 1958, Mrs. William T. Eccles represented Colorado. From these fourteen applications, two will receive an all-expense trip to Newark, plus silver lapel flower containers, rose bushes and a chance to compete for the \$5,000 perpetual challenge trophy. May the best designer win!

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Designers will have an opportunity to start Flower Show School Course April 24-25-26 at 909 York St., Denver. Herbert Gundell will teach Horticulture and Flower Show Practice. Mrs. Bernice Lang will be the flower arranging instructor. Let's give this home-state couple a large attendance. Mr. G. A. Seastone, 805 Mt. Ave., Fort Collins, and Mrs. Ethel Petrick, 3011 Franklin St., Englewood, will gladly give additional information.

Information and education are the backbone of *The Green Thumb* and Miss Mary Louise Riede, of the Kibitzers Garden Club, offers some — **CLUB HELPS AVAILABLE FROM THE U. S. FOREST SERVICE:**

Films — Excellent color-sound Conservation films. (Address request to Visual Aids Section, Colo. State University, Fort Collins, Colo.) Highly recommended for club showings are: "Watershed Wildfire," "The Forest," "Water for the West." (Complete film list available on request.)

Publications — New booklet "Operation Multiple Use — Program for the National Forests," and other Conservation publications, film list, and charts. Request for your club by note addressed to U. S. Forest Service, Denver Federal Center, Denver.

"Smokey" Items — Smokey Posters, song sheets, easels, bookmarks, etc. (Request same as for "Publications.")

Assistance in Planning Conservation Projects, including Field Trips — For information contact: Mary Louise Riede. U. S. Forest Service, BE 3-361 Ext. 8003.

Forest Service Certificates for Memorial Forest Planting: Club contribution (\$5 toward planting of 250 trees) may be made through Fed. of Garden Clubs. For further information contact your Club President.

County Home Demonstration clubs are another group complementing gardeners. The Plum Creek Home Demonstration Club, Douglas County, has been going all out for gardening activities, even Floral Design, with three members, Mrs. Margaret Enax, Mrs. Marian Morgan and Mrs. Norma Lee Hunter taking courses in flower arranging. National Home Demonstration Week April 30-May 6. Fine time for a co-operative county flower show. Yes?

Remember, you protect your own property when you protect the parks and streets in your town. Don't BE A Litterbug — Keep America Beautiful.

In addition to our usual line of ornamental plants suitable for this climate we will feature this year:

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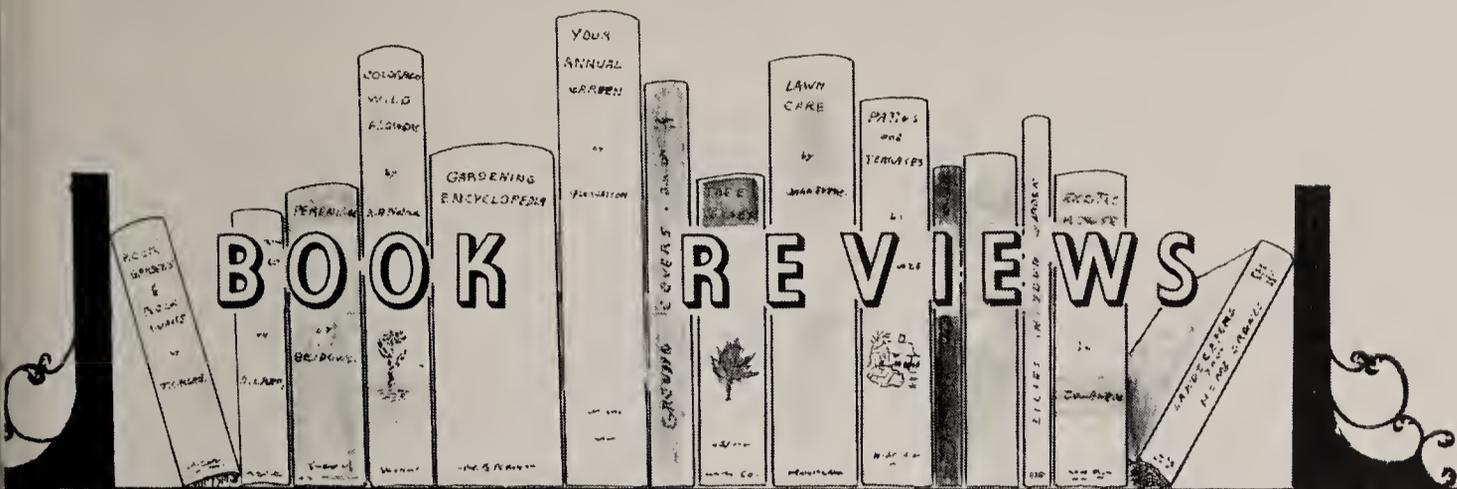
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THE LAWN BOOK

ROBERT W. SCHERY

Published by The Macmillan Company, New York. \$5.95

This book, written by the Director of The Lawn Institute of Marysville, Ohio, Dr. R. W. Schery, is an authoritative guide to the homeowner concerning a topic that nearly all homeowners are wanting to know more about — lawns. It is the most recent work of its type on the market (released March 27, 1961) and is up-to-date in every aspect of lawn preparation and care. The book is designed for use in every part of the United States, dealing with lawns of arid and semi-arid localities and lawns of the non-irrigated, moist areas of the U. S.

Unique, in this book, is a chapter entitled "A Turfgrass Logbook", which describes the month by month changes that take place in a lawn.

In addition to details in the preparation of a new lawn, Dr. Schery describes the problems that arise in an established lawn and lists recommended control measures or corrective measures such as chemical weed killers including types and their effectiveness on various weed species, fungus control and lawn insect control.

Included are 16 pages of photographs and line drawings of 13 different, desirable lawn grasses and 49 weeds that invade lawns. JRF

FLOWER CHRONICLES

By Buckner Hollingsworth, published by the Rutgers University Press, 1958, gives the authentic history of many "old" flowers, such as Rose, Iris, Tulip, Peony, Lily, Poppy, Marigold (meaning Calendula), Daisy, Primrose, Dahlia, and some others. Mrs. Hollingsworth has done a great deal of historical search on them.

This is an interesting book to read (300 pages), and a pleasant one to leaf through, looking at the quaint old pictures showing ancient flowers as far back as the Bronze Age in Crete, more than four thousand years ago.

If you are interested in old poetry, here is one in Middle English about marigold:

"Wt good reed wyn yat be stale,
Alle maner veny will it abate
In manys body early and late."

So, if you are anxious to find out about the very flowers you are growing in your garden, sit down with this "Flower Chronicles" some evening and have good time doing it.

MWP

WHAT ABOUT LAWN RENOVATION?

The term "lawn renovation" has come to be used by many as meaning only the removal of accumulated grass clippings (thatch). Such removal has been a subject of much controversy among turf-grass experts.

Should I remove the clippings? The answer to this question could be either "yes" or "no" depending on circumstances and your particular lawn. First, if you have a very thick carpet of grass, clippings may build up (in a period of a year or more) which may hinder the growth of the lawn in the following ways:

1. Heavy accumulations of clippings may cause nitrogen deficiencies as a result of the use of nitrogen by the bacteria which break down the thatch. This will occur to some extent in the layer of thatch that is in direct contact with the surface of the soil.
2. The decomposition of grass clippings and, for that matter any organic material, results in the emanation of ammonia gases that, if in high enough concentration, will cause yellowing of the living grass plants. This may occur in heavily thatched lawns. The heavy "windrows" of clippings left on top of the grass may cause yellowing of the grass beneath. This chlorosis, however, may be corrected with an application of iron.
3. It is a proven fact that grass clippings that have dried in the sun do not absorb moisture to any appreciable extent and, when in thick layers, actually act as a water-repellent. Only after the thatch has been placed in intimate contact with the soil or decomposing organic matter, will the dried thatch begin to break down and hold moisture. Layers of clippings, do, however, help to retain the moisture already in the soil.

Second, if you have a thick lawn, the clippings may be so numerous that they harm the appearance of the lawn. You've undoubtedly seen lawns that look more like freshly mowed hay fields. If this is the case, removal of clippings may be desirable. (Heavy accumulation of grass clippings may be avoided by more frequent mowing).

If your lawn is not a thick carpet and does not have a heavy accumulation of thatch, "renovation" may not be necessary. Renovation, however, should not only be done to remove thatch but also to aerate the soil surface especially on those lawns having fungus diseases. Several machines that will do both operations are now on the market to buy or rent. Some types actually slice the soil to ¼ to ½ inches deep and, at the same time, bring the thatch to the surface of the lawn. Others "scratch" the soil surface and rake the thatch. Power vacuums are also available to remove the loosened thatch and windrows of clippings.



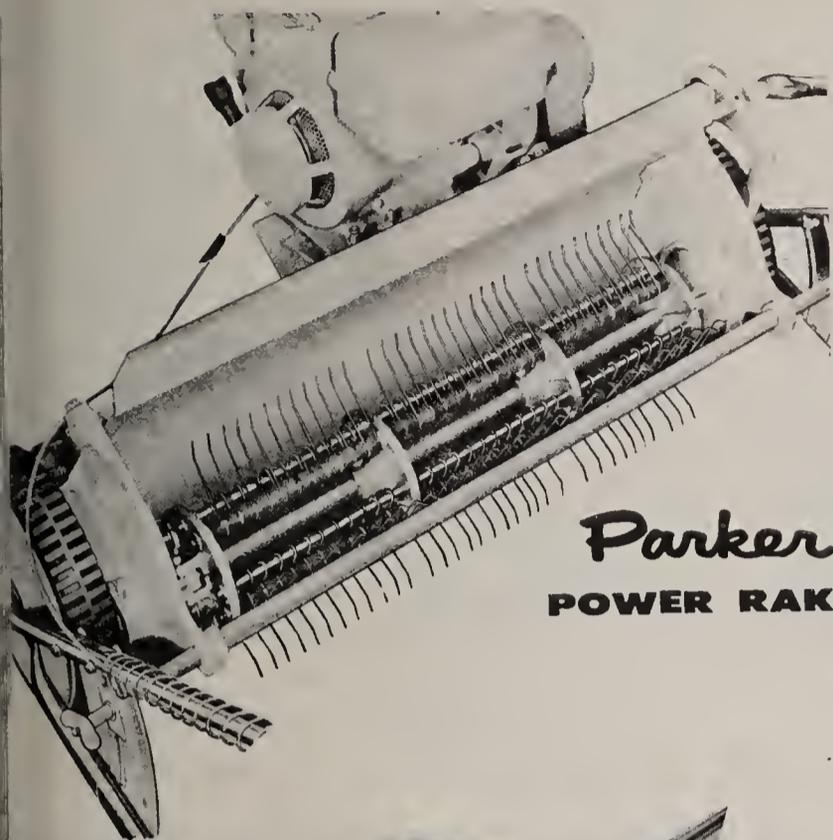
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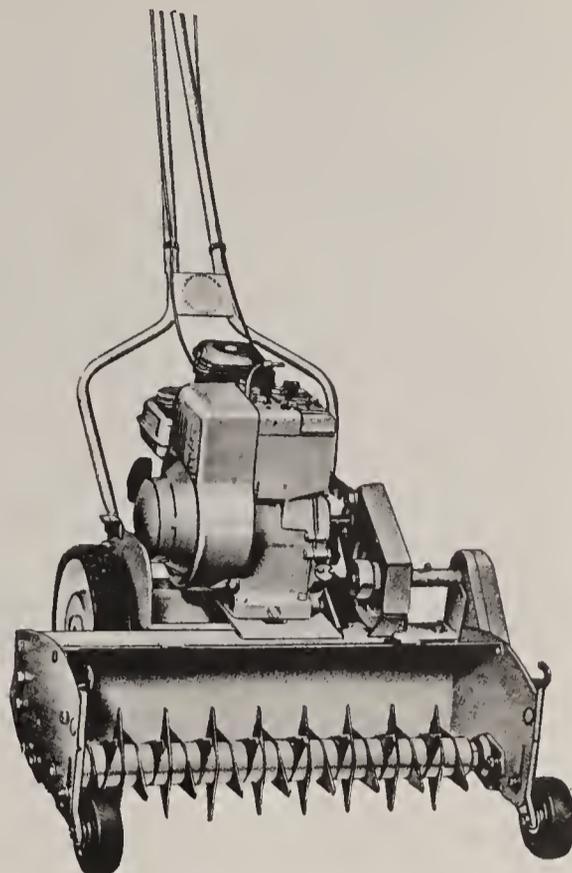
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The Green Thumb

Magazine for Rocky Mountain Gardeners



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MAY,

1961

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The Green Thumb

Vol. 18

No. 4

To conduct research on plants, both native and exotic, in varied plant zones of our region, to evaluate their economic, medicinal and horticultural potentials.

To coordinate the knowledge and experience of botanists, horticulturists and gardeners.

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Members



Calendar Of Events

Every Saturday morning — 9:10 a.m.
KLZ Radio. Various Gardening
Topics by Herbert Gundell, Denver
County Agent.

Every Saturday Afternoon — 4:30
p.m. KLZ-TV Channel 7. Gardening
Program by Herbert Gundell.

Every Tuesday Evening — 8:30 p.m.
KRMA-TV Channel 6. Mile-high
Gardening Program. George Kelly,
host.

At Botanic Gardens House, 909 York

May 2—8:00 p.m. Tree Class, Mr.
Seiji Horiuchi

May 8—10:00 a.m. Judge's Council
4:00 p.m. Children's Garden

May 9—10:00 a.m. Herbarium Study
Group

2:00 a.m. Garden Club of Denver

4:00 p.m. Citizens' Park and Shade
Tree Committee

7:30 p.m. Evergreen Garden Club

May 10—4:00 p.m. Children's Gar-
den

May 11—2:00 p.m. Sow & Grow Gar-
den Club

7:30 p.m. Rose Society

May 12—1:30 p.m. Colorado Welles-
ley Club

Luncheon. Dr. A. C. Hildreth,
speaker

May 14—4:00 p.m. Childrens' Gard

May 15—4:00 p.m. Botanic Gard
Board

May 16—9:15 a.m. Sunburn & Blist
8:00 p.m. Tress Class. Subject: T
Leaves. Dr. A. C. Hildreth.

May 17—9:30 a.m. Fun with Flowe
4:00 p.m. Childrens' Garden

May 18—10:00 a.m. "Around the
Seasons"

May 19—7:30 p.m. Landscape Co
tractors

May 20-21—All Day. Denver Bota
Gardens — Fiesta

May 22—4:00 p.m. Childrens' Gard

May 24—4:00 p.m. Childrens' Gard

May 25—1:00 p.m. Div. A. Civic G-
den Club — Luncheon

May 29—4:00 p.m. Childrens' Gard

May 31—4:00 p.m. Childrens' Gard

June 1—7:45 p.m. Orchid Society

June 2—7:30 p.m. Landscape Co
tractors

June 5—9:30 a.m. Junior Committe
4:00 p.m. Children's Garden

June 6—1:00 p.m. Mountain View
Garden Club

June 7—4:00 p.m. Childrens' Gard
7:30 p.m. Botany Club

June 8—7:30 p.m. Rose Society

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NOTES AND NOTICES

1961 ROSE GUIDE—Rose producing nurseries report tiptop quality for 1961 rose bushes. To aid the home gardener in selecting the best kinds for spring planting the "1961 Guide for Buying Roses" is now available.

The Guide rates 455 old and new roses including hybrid tea, floribunda, climber, grandiflora and miniature. The ratings are an average of reports from more than 5000 American Rose Society gardeners. A sliding scale is used with the perfect rose score graduated to 5 "of questionable value." Since the first Guide was published in 1950, 2 million copies have been distributed to help all gardeners select the best roses.

Write to the American Rose Society, Columbus 14, Ohio, for a free copy.

BOOKS AND BOOKLETS FOR SALE — The following books and booklets may be purchased in the office at the Denver Botanic Gardens House, 109 York Street:

around the Seasons by S. R. DeBoer.....	\$1.00
Meet the Natives by M. Walter Pesman.....	spiral binding 3.60
	regular binding 3.00
Mountain Wild Flowers, a museum pictorial.....	1.25
Colorado Evergreens by Robert E. More.....	2.50
How to Grow Good Gardens in the Sunshine States by George Kelly....	
	spiral binding 3.25
	regular binding 3.00
Saga of a Forest Ranger by Len Shoemaker.....	5.00
How to Identify Plants by H. D. Harrington.....	3.00
The Secret of the Green Thumb by Henry and Rebecca Northen.....	5.00
Twig Key (Identification of trees and shrubs in winter) by William Harlow	0.60
Fruit Key (Identification of plants by their fruit) by William Harlow....	0.60
What Tree is This by the Denver City & County.....	0.25
Nature Games by Nesbit.....	0.60

BOTANIC GARDENS BOARD OF TRUSTEES ELECTION — A board meeting of Denver Botanic Gardens, Inc., was held March 20 at Botanic Gardens House. An election of members was held and the following officers were re-elected: Lawrence A. Long, president; Mrs. James J. Waring, first vice president; Mrs. J. Churchill Owen and Dr. John R. Durrance, vice presidents; Mr. John C. Mitchell, treasurer; Dr. Moras L. Shubert, secretary and M. Walter Pesman, historian.

The seven-member executive committee elected for the year is composed of the president, the first vice president, the treasurer, who serve ex-officio, and four of the trustees. Trustees elected were: Mrs. Ed. H. Honnen, Mrs. Frank McLister, Mrs. George Garrey and Dr. J. R. Durrance.

Six trustees whose terms expired in 1961 were re-elected: Mrs. Alexander Harbour, Mr. Everett Long, Dr. William Morgan, Mrs. Frank McLister, Mrs. Ed. H. Honnen and Mrs. J. Churchill Owen.

ARTICLES OF LASTING INTEREST — In past issues of *The Green Thumb* are several articles of interest to today's gardener. Copies may be obtained from Mrs. Helen M. Vincent at Botanic Gardens House. Among such articles are: Lilacs for Colorado by Milton J. Keegan. *The Green Thumb*, vol. 1, number 7, December, 1944. Beautifully illustrated. Price—10 cents. Flowers and Gardens of the Central City Region. A well illustrated issue by several authors. *The Green Thumb*, vol. 3, number 4, July-August, 1946.

Price—50 cents. Hawthorns by M. Walter Pesman. *The Green Thumb*, vol. 7, number 5. May, 1950. A descriptive article and completely illustrated. Price—10 cents.

IN APPRECIATION — The Trustees and Staff of the Denver Botanic Gardens extend their sincere appreciation to Clyde E. Learned for unselfishly relinquishing his time and effort to tend the Botanic Gardens booth at the Colorado Garden Show for the entire 8-day period.

Appreciation is also extended to those listed below who aided Mr. Learned in the booth and as a result helped to obtain 109 new members of the Denver Botanic Gardens.

Mesdames Pat Bowman, Leah Brown, Knobby Brown, Georgia Burrutt, Rose Christensen, Katharine Crisp, Lillian Doty, Margaret Easton, Lise Ewens, Gloria Falkenberg, Georgia Grey, Marylyn Holmes, Judy Honn, Esther Jacobson, Elaine Jackson, Marguerite Jones, Gladys Kirk, Fran Morrison, Vern Neil, Harracena Newman, Florence Parker, Bernice Petersen, Agnes Swennes, Marjorie Shepherd, Pat Smith, Agnes Sena, Pauline Stee, Winnie Stratford, Marcia Thompson, Marcia Thomas and Mary Washburn.

Coming Soon!

FIESTA AND PLANT AUCTION

The annual Plant Auction to be held in connection with the FIESTA at the Denver Botanic Garden on May 20th and 21st comes at an unusually late date but, *please*, all gardeners hold on to your patience and your purse strings! A sampling survey of our nurserymen friends brings the cheering news that there will still be many fine items in their stocks available for them to donate to the Auction. The outstanding bargains that characterize this event can still be had.

From the Kelly's Cottonwood Shop will come ground covers and herbs, possibly vegetable seedlings. From Iliff Garden Nurseries, perennial and annual bedding plants. From the W. W. Wilmore Nurseries the usual generous supply of balled evergreens and container shrubs. From Green Bowers, balled and paired evergreens and carefully packaged dormant shrubs. Alameda Nurseries will donate container roses and small container evergreens. Bartels Garden Center will contribute potted begonias, in addition to other items. Associated Landscape will bring shrubs, canned or bare root. Creative Gardens will send a variety of material and Harry Swift of Western Evergreens, well known for his collection of "natives," will be represented. Other nurseries will remember us as they have always done. All proceeds will go to the Denver Botanic Gardens.

Clyde Learned, who for many years has had charge of the bedding plants, will be on hand with a good supply. These are sold direct to customer, apart from the Auction. May 20th is the ideal date to take them home and put them in their permanent location.

Your time at the Plant Auction will be well spent. Auctions are fun and both your garden and your pocketbook will profit thereby.

CHARLOTTE A. BARBOUR.

HORTICULTURE ASSOCIATION ASSETS TRANSFERRED

FRED R. JOHNSON

On November 1, 1960, The Colorado Forestry and Horticulture Association merged with the Denver Botanic Gardens and ceased to exist as a separate entity. However, when organizations decide to dissolve many details have to be taken care of before the legal steps for dissolution of the corporation can be completed. For example, The Colorado Forestry and Horticulture Association had obligated itself to issue a final number of *The Green Thumb* before the Botanic Gardens would take over the responsibility for its publication. The final publication of The Colorado Forestry and Horticulture Association (a combined November-December issue) appeared in December, 1960. The author of this article takes this opportunity to record the fact that our good friend and patron, Mrs. Charlotte A. Barbour, took the tab for that issue. This is a public acknowledgment of our appreciation for her generous gift.

In closing the affairs of the old Association, bills had to be paid, accounts receivable had to be collected and finally an audit was made so that trustees of both organizations would be certain that all details had been handled correctly and that there were no outstanding liabilities. This audit was made by Mr. E. W. Anderson and his report is in the hands of Scott Wilmore, President of the old Association.

Mr. Wilmore then authorized Treasurer Earl Sinnamon and Assistant Treasurer Helen M. Vincent to transfer balances remaining in the various accounts to the Denver Botanic Gardens in accordance with the agreement made at the time of the merger. These were as follows:

Colorado Forestry and Horticulture Association Operating Fund..\$	726.10
Helen Fowler Library Fund.....	966.85
Shelby Thomas Endowment Fund.....	243.91
Total.....	1,936.86

The Library Fund has additional assets, amounting to slightly less than \$400.00, in the form of books purchased by The Colorado Forestry and Horticulture Association for resale and these will be gradually turned into cash. The books available are listed on page 121 of this issue.

I'm sure that members of the old Association will be happy to learn that when it ceased to exist it was completely solvent and that it brought to the

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Botanic Gardens, not only the substantial funds shown above, but other worthwhile assets. First of all is the Helen Fowler Memorial Library, one of the most complete in this region on gardening, horticulture, landscaping, parks and conservation subjects. Its value is conservatively placed at \$10,000.00. Next is the Kathryn Kalmbach Herbarium containing about 2,000 specimens, almost invaluable to botanical students. In addition, many items of office furniture and equipment were transferred to the Botanic Gardens. The approximate value of this furniture and equipment is estimated at about \$2,000.00.

Colorado Forestry and Horticulture Association board member Henry V. Toll is preparing the legal paper for dissolving the corporation, and when it is filed with the Secretary of State, at the State Capitol, there will be left only the memories of projects carried on for a period of approximately sixteen years by a group of devoted horticulturists, gardeners, landscapers and conservationists. Tangible evidence of their work may be seen in the bound copies of *The Green Thumb*, to be found in many libraries, and also in the library, herbarium and other assets transferred to the Botanic Gardens.

The above is the final record of a project well done.

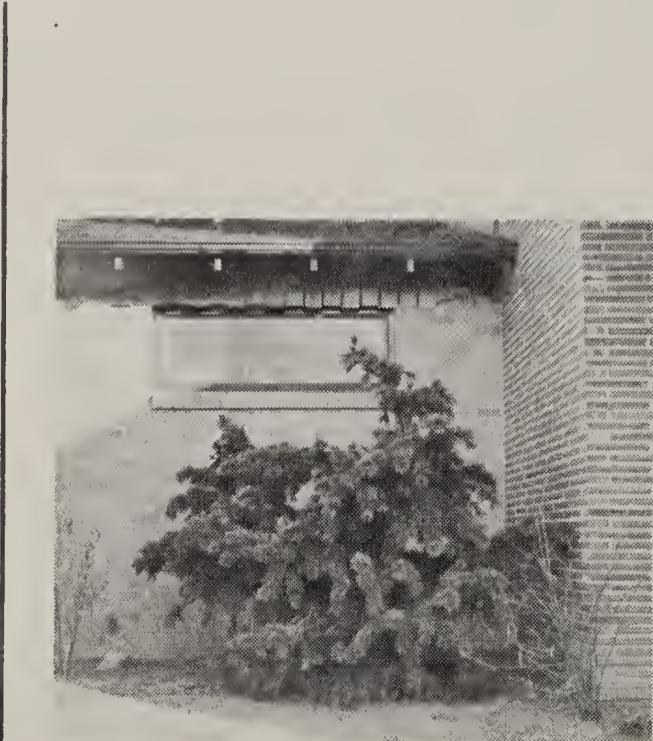
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HONORING BURTON O. LONGYEAR

M. WALTER PESMAN

OFTEN toward sunset the Colorado landscape strikes us as being at its greatest glory.

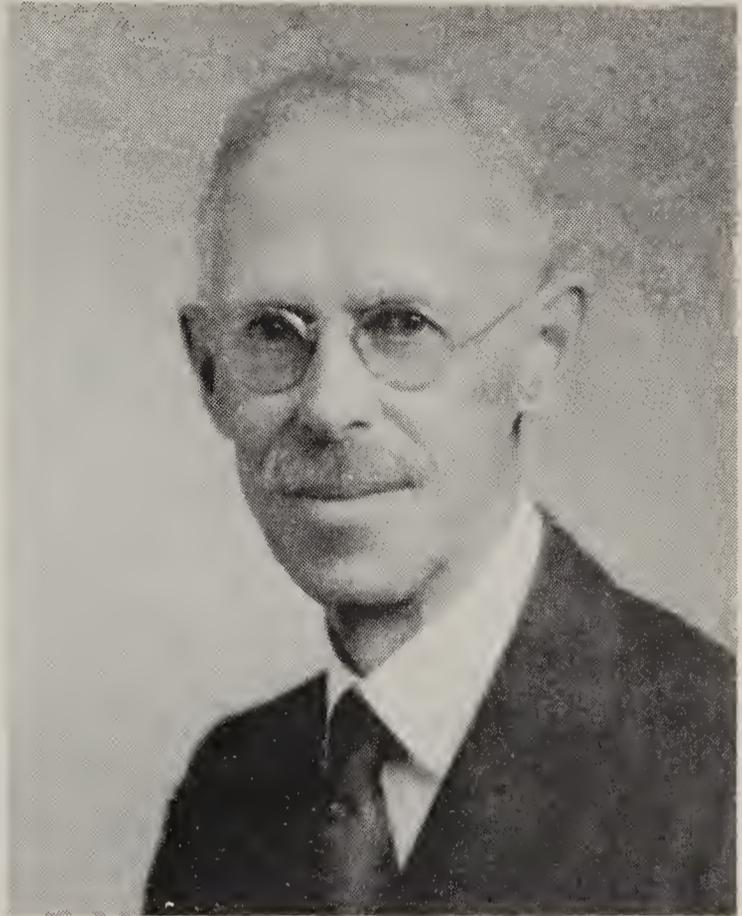
At the sunset of a full life, well lived, human being may loom up in true stature.

Professor Longyear, as many of us are in the habit of calling him, is one of these modest great figures who never seeks the limelight, but who is known by his works and by his personality. To know him means to appreciate him.

His "Trees and Shrubs of the Rocky Mountain Region," published in 1927, was a much-needed and carefully done guide to hundreds of nature lovers who found it difficult to wade through the botanical jargon of non-illustrated books. Its only competitor in "picture-botanics" was Clements and Clements' *Rocky Mountain Flowers*, which lacked the clear description of each plant.

The pen-drawings in "Trees and Shrubs" are beautiful proofs of Professor Longyear's artistic ability and his scrupulous attention to botanical details. No careless observation or slovenly illustration would ever pass his scrutiny.

Another choice publication, "Rocky Mountain Wild Flower Studies," had antedated "Trees and Shrubs" by eight-



BURTON O. LONGYEAR

teen years. He called it a book of nature study and published it himself. No one, interested in the wonders of plant growth, could help but be intrigued by the topics he chose, from the story of the cottonwood, the "plant thieves" (parasites) and the loco story, to the fascinating cooperation between yucca and the pronuba moth.

The book shows how easy it is to make growing youth conscious of the

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“wonders of nature.”

“A lovesome thing is the white birch tree.” So begins a little collection of Longyear’s poems, published in 1945. I am merely quoting it to show another side of his life with many interests, thoughtful and his friendly feeling toward nature!

This aspect of his personality is close kin to his warm-hearted attitude to—How could he help breaking into poetry at times, with his sense of the beautiful toward his fellow-man. He took a personal liking for his students and for his associates in many walks of life. That is one of the qualities needed in a good teacher, isn’t it?

Does that mean that he was “easy” on his students? Far from it. Being a hard worker and a careful student himself, he required first class work from his pupils. As a result he generally did get excellent work from them. What is more, he managed to instill in them the scientific attitude and logical method of thinking.

I shall never forget a typical exam-

ple of both. In a field class we were asking him to identify a shrub on the campus. No answer. Out came the inevitable magnifying glass. He examined the leaf and fruit, looked for a shriveled-up piece of flower, made sure the proper leaf-hairs were present and only then came the answer. There was no doubt left in his mind, and he explained the process of determining the identity of the plant. Here was a valuable exemplification of the scientific process and the careful observation.

As Professor of Botany and Forestry at the Colorado A and M College (now Colorado State University) he met the challenge of introducing its students to the intricacies of both. We all became interested, and some enthusiastic about both. At one time he was the Colorado State Forester and in addition to many other activities, established the first arboretum in Colorado.

Some of us got to know him well enough to see his exquisite work as a lapidary. Here then is a man who shows what a rich life is like.

“For most persons the word lawn bears a vague meaning compounded of the recollection of grass-covered spaces dotted over with trees and shrubs, and of broad areas covered over with closely mown turf. Both are correct impressions; but the more important feature is that a lawn shall be an open area of grass space.”

—Liberty Hyde Bailey.

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Pete Ponders

Dear Pete,
I love to clip plants and thought a low formal hedge at the edge of a raised border would be "shear" delight. What shall I use?

Shear Fun



Dear Shear Fun,
The choice is limited. *Lodense prinos*, which retains its leaves extremely well, is used most frequently. Don't be afraid to cut back the plants vigorously when planting to get density at the base of the hedge. Insert any 3 to 4 inch remaining cuttings between plants or beneath shrubs elsewhere for propagating additional plants; they root readily.

Lavender cotton, *Santolina chamaecrista*, favored for its grey foliage, makes a beautiful hedge about 6 to 8

inches tall. Charles Troutt has found many adaptations for it at Elitch Gardens. It sometimes winterkills, perhaps from drought. Cuttings taken in late August or September usually root.

If you're adventuresome you might try Germander (*Teucrium*). Its patent-leather foliage is choice. According to Bill Lucking it thrives when planted in average sun and in soil with good drainage.

Dear Pete,

We want Henry Clematis planted about six feet apart along a fence. Any special precautions? I'm no magician, but

Can Do

Dear Can Do,

You don't need magicianship. Clematis requires plenty of water, good drainage, and most essential — their feet in shade and heads in sun. Use peonies, geraniums, rocks — anything to keep the feet cool, except an epsom salt bath, to promote growth. Easterners add lime to the soil. We don't!

Dear Petie:

Our problem is a hot spot about 3 feet wide on the south side of the house. Since it's near our entry have

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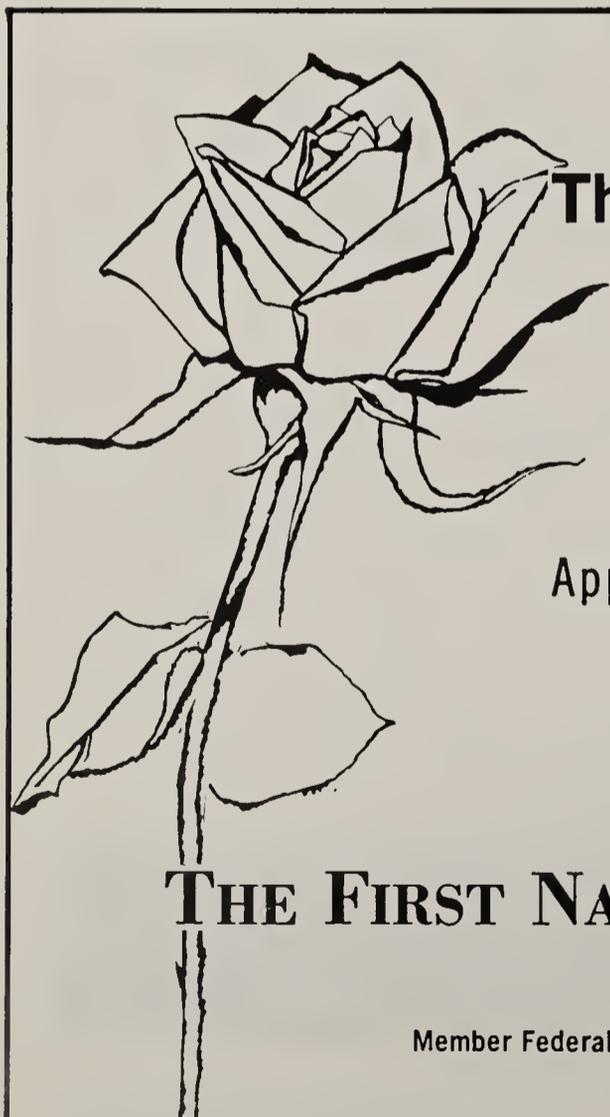
**HEN AND
CHICKENS!**

Dear Southern Charm,

Depending on the length of the a one or more deeply eroded rocks complemented with cactus, blue fescue, choice sedums, hardy hen and chicks plus a cover of crushed stone would be "charming". Yucca is excellent providing contrast in texture. You might try a mosaic of the winter-hardy varieties of hen and chicks (*Sempervivum*) or of stonecrop (*Sedum*) that remain evergreen such as *Sedum album*, *S. sexangulare*, *S. reflexum*, *S. chaemleon*, *S. album murale* (dark reddish brown) and *S. spurium*.

If you simply want a ground cover, seedlings of our native oregon-grape (*Mahonia repens*) and Kinnikinnick (*Arctostaphylos Uva-ursi*) are effective. Some of the local nurseries have both of these ground-covers available.

REMINDER — Don't miss the Fiesta and Plant Auction, May 20 and 21. We welcome donations of "Antiques and Horribles." Expensive items are income tax deductible. For information call Mrs. E. H. Honnen, PL 5-0401.



You are invited to enjoy
The DENVER ROSE SHOW
in the lobby of The First
Sunday June 25, 1961

Approximately 800 exhibits

*Sponsored by the Denver Rose Society
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THE EXHIBITING OF ROSES

CLYDE E. LEARNED



The object of a rose show is to encourage people to grow more and better roses, to gain ideas from your competitors and to hear and learn about the newer creations.

Before getting very far into the subject, it would be well to point out that no special skill is required to grow first class roses, other than by following good and sound cultural practices. To produce fine exhibition flowers it is necessary that you feed your well established bushes with recommended rose fertilizers about once a month. The feeding with liquid organic fish food or cow manure, between the regular fertilizer feedings will materially assist in producing first class exhibition blooms. One thing is certain, that attention to the soil and careful preparation of the rose bed makes for better roses and more of them.

In many of the rose shows the novice or beginner often wins many of the coveted ribbons and trophies. Should you plan to enter roses in a show it would be well to anticipate your entry two or three weeks in advance. Assuming the bushes have been properly planted, cultivated, fertilized and sprayed or dusted for insects and disease the most important detail is to see that the bushes get plenty of water prior to the show. An adequate sup-

ply of moisture results in larger blooms, adds substance to the petals and improves the color of both the blooms and foliage. To produce hybrid teas and grandifloras with large and full blooms it is necessary to pinch off the small side buds about two weeks prior to the show. If side buds are cut off as soon as they start to form, the remaining terminal bud will develop into a larger and finer flower. The careful and skillful use of a sharp safety razor blade is suggested for these disbudding operations.

With sprays of floribundas, it is desirable to remove the center buds early so that the remaining buds will have a better opportunity to open and develop evenly. A spray of floribundas should be well balanced and attractively shaped with a number of full blown blossoms, a few half open blooms and several buds.

To prevent discoloring of the blooms and foliage, discontinue spraying and dusting about a week prior to the show.

I have found that the greatest asset I have in exhibiting roses is in having plenty of refrigerator space for storage, which permits me to start cutting and storing roses about a week before the show. In storing roses, the refrigerator should be maintained at a temper-

ature of 36 to 38 degrees.

I have found that it makes no appreciable difference as to whether the blooms are cut early in the morning or in the evening after the heat of the day has passed, providing the blooms are in good condition when cut and are plunged immediately up to their necks in cold water. Generally the blooms should be cut when a quarter to a third open, or when one or two petals have started to unfurl. To facilitate identification put a tag on each bloom when cut. Some difficulty will be experienced in storing red roses for a week, as they often have a tendency after about three days in storage to darken or blue on the edges. Experience is the best guide in the timing of the cutting and storage of the various varieties of roses. However there is not much question, but that roses that have been chilled and hardened properly, stand up much better in a show than freshly cut roses.

Many of our exhibitors, including the writer, use a bloom preservative such as "Petalife" or "Floralife" to lengthen the life of roses.

The stems should be from 12 to 18 inches in length, or in pleasing proportion to the size of the bloom.

I have found that one gallon Prestone cans with the tops cut out make very satisfactory receptacles for the storage of roses in the refrigerator.

Some of my friends use plastic boxes for storage.

Many methods are used in transporting roses to the show room. Some use individual pop bottles, some pails of cold water, and some heavy paper or plastic containers. In my own case I use heavy cardboard boxes, like the ones Christmas fruit is shipped in. The boxes are about 12 inches wide, 18 inches long and 4 inches deep. From two to eight roses are laid the long way in the box and the same number in the opposite direction. Crushed ice or ice cubes are placed on the stems and the foliage in the center to keep the roses cool.

The stems should have at least three or more sets of leaves and all spines or foreign material should be removed. Perfect leaves add to the appearance and improve the rating. The stems should be straight and capable of supporting the rose in an upright position. Be sure there are no aphids or other insects on the rose or leaves.

At the time of judging the roses should be from one-half to three-quarters open, with the petals being symmetrical around the center. High centered blooms have an advantage over those that are not so fortunately endowed. The careful removal of a few outside petals which have been torn or damaged is permissible, if well performed and will probably improve the

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ARRANGEMENT IN NICHE



TABLE ARRANGEMENT

appearance of the entry. Be sure the metal removal does not leave a stub and does not throw the bloom off balance.

If the bloom is too tight, blowing directly into the center may assist in opening it up. Just prior to placing the bloom in the exhibition vase cut off about a half inch of stem.

In order to satisfactorily judge and rate roses it is necessary to have a standard measuring device. Without some standard it would be possible for a judge to express his or her individual preference for perfection in such items as size, form, length of stem or other feature, in a manner out of proportion to the other elements of the rose to be judged.

To serve as a guide and avoid as much confusion as possible the American Rose Society has set up the following point system for the several elements on which it is believed a rose should be judged and rated.

- | | |
|-------------------------|-----|
| 1. Form | 25% |
| 2. Color | 25% |
| 3. Substance | 20% |
| 4. Stems & Foliage..... | 20% |
| 5. Size | 10% |

brief description of each of those

elements might be desirable.

1. **FORM 25%**. Defined as the shape or external appearance. The beauty and attractiveness of a rose begins with its form. A rose may be as large as a peony, but if it lacks symmetry or is out of proportion to stem and foliage it is not considered a high scoring rose.

The American Rose Society recognizes five distinct types of bud form:

- (a) the slender or tapering bud as Eclipse or First Love.
- (b) the pointed bud as Charlotte Armstrong or Sutter's Gold.
- (c) the ovoid bud as Peace or The Doctor.
- (d) the globular or cup-shaped bud as Radiance.
- (e) the urn-shaped bud as Crimson Glory or Talisman.

2. **COLOR 25%**. Is the rose dull or bright with no blemishes on the individual petals? The color of some varieties often varies with the soil, fertilizing or weather conditions. Pure red roses should be free of a bluish tinge.

3. **SUBSTANCE 20%**. This term usually needs an explanation. Authorities appear to agree that a rose with

good substance or body has firm, thick, tough petals that do not bruise easily and the rose has good keeping qualities.

4. **STEMS & FOLIAGE 20%**. The stems should be in pleasing proportion to the size of the bloom, normally from 12 to 18 inches in length and should be reasonably straight and of a size to satisfactorily support the bloom.

5. **SIZE 10%**. Many amateurs judge roses by their size. However size seems to be the least important of the elements judged as the average rose which meets the above requirements and is in good condition will be rated the full 10 points. Should the judging be very close, it can normally be expected that the larger bloom will receive a slightly higher rating.

GENERAL. Bear in mind that the roses are judged at the time the judge sees them, not how they previously looked, or how they will look later when they open up a little more. To have the rose in top condition at the time of judging is a question of **TIMING** based on experience.

Be sure your roses are correctly named and entered in the right class, in accordance with the **ROSE SHOW SCHEDULE**.

Although the **ROSE SHOW SCHEDULE** is drawn up to meet local conditions it conforms more or less to the following pattern:

(a) About fifty or more "**SPECIAL CLASSES**" of both single specimens and Groups of Three of the most popular Hybrid Teas, Floribundas, Grand-

ifloras and Climbers.

(b) About fifty "**COLOR CLASSES**" of both single specimens and Groups of three blooms of Hybrid Teas or blooms or sprays of Floribundas and Grandifloras.

(c) About fifteen to twenty classes of "**ARRANGEMENTS**". Although the older rose schedules included such classes as an Arrangement for a Coffee Table, Buffet or Mantle the more recent schedules have got a little more advanced, elegant and refined and usually follow a **MAIN THEME** with the result we have **CLASSES** such as "**GREEN SENTINELS**," an arrangement using pine or spruce with roses, or "**GOLD RUSH DAYS**" an arrangement in which yellow roses predominate.

The exhibiting of roses is a good clean sport, and win or lose you will meet many fine and friendly folks. Just keep in mind that most judges have been, or still are outstanding exhibitors who have had special training in the judging of roses. You will also discover that some judges are high scorers, while others are more conservative. The more experienced the judges, the better the results.

Although you will never be able to quite understand why certain of your roses, which you thought were sure winners did not receive a cup or at least a blue ribbon, you, on the other hand will be surprised every once in a while to find a blue ribbon tagged to a bloom that you did not think was outstanding, but which suddenly opened up into a beautiful creation.

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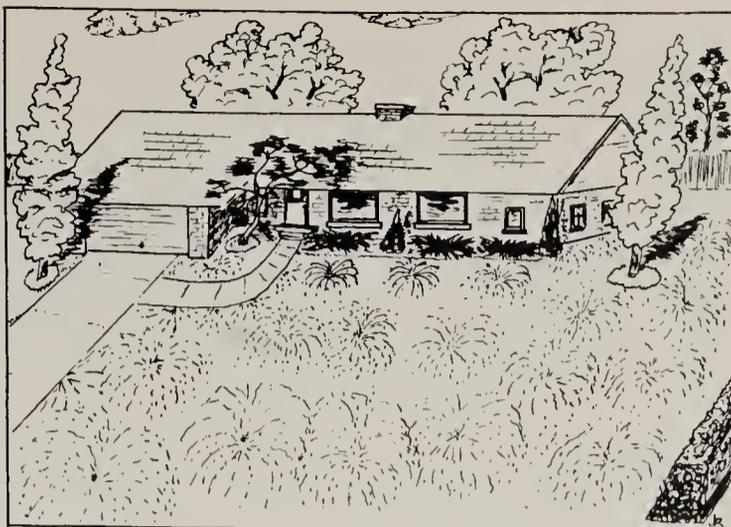
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HOMER FANNING



When a traveler arrives in Denver after driving through the hot dusty plains of the plains to the east, he is immediately struck by the green and fresh appearance of our lawns and parks. This lovely feature of our city is not a product of nature alone, but the result of constant care. This care includes irrigation, which brings us to the subject for discussion, namely, "Lawn Sprinkling."

Lawn sprinkler systems can be roughly classified into three types:

- (1) Manual
- (2) Semi-automatic
- (3) Fully automatic.

Manual is the type commonly found in use on home lawns in Denver. This type ordinarily consists of a sill cock at the house underpinning, front and back, with a hose attached to each of the sill cocks supplying water to some variety of sprinkler. The method of operation is not uniform from home to home, but may run something like this:

The husband comes home about 5:30 p.m., straightens out the hoses and starts the sprinkling operation. He attempts to read the evening paper between sprinkler moves. He becomes engrossed in an article and allows the sprinkler to stay in the same place for 30 minutes. Suddenly he realizes that he has to run an errand and that very little time is left for watering. Therefore, each of the remaining sprinkler settings is given one or two minutes operating time.

The above exaggeration seems only to emphasize the inefficiency inherent in this type system which, even with the best of operators, is lavish in expenditure of labor and water.

The semi-automatic type is a system comprised of banks of sprinkler heads that are supplied with water by opening manually operated valves. The pipe to the sprinkler is usually underground but may be attached to faucets or other structures above ground.

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The fully automatic type is similar to the above described semi-automatic system except that the control valves are open and closed by some form of a timing device, such as an electric clock, and when in good working order does not require any labor to operate.

Let us now discuss briefly the relative merits of the three types of water systems.

The first, the manual, while expensive in labor and water has a very low initial cost; \$25.00 to \$50.00 worth of hose and sprinkler heads and the system is ready for operation. Also, a few dollars per year is all that is required for maintenance.

The second, the semi-automatic, while it requires little labor to operate does have the fallibility of the human element in its operation. For instance, a housewife has turned on a bank of sprinklers, she receives a telephone call, becomes engrossed in conversation with her friend, fails to notice the lapse of time, and the bank of sprinklers that should have operated only 10 minutes operates for an hour. The initial cost of a system of this type may vary from \$500.00 to \$2500.00 per acre. Some care and maintenance is required for the system's upkeep, but is not too expensive.

The third type, the fully automatic, is, when properly timed, conserving of water and needs no labor for opera-

tion. The system can have, and frequently does have, a much higher maintenance cost due to the fact that a skilled mechanic is required to repair an electric timer. The initial outlay on this installation is higher than any other type of water system and may vary from \$1500.00 to \$4000.00 per acre.

One reason for the high initial cost of the semi-automatic and fully automatic systems is that their installation is a much larger job than just a do-it-yourself project. Therefore the job should be handled by a person who is experienced and qualified in designing and installing sprinkler systems.

Let us now turn our attention to the application of water.

The amount of water needed to maintain a lawn depends on the slope, temperature, humidity, plant growth, etc. The amount to be applied artificially also varies with the rainfall. Thus, no hard and fast rule can be used to predict the amount of water that will be needed. However, in the design of the water systems of the Denver City Parks a basis of 20 inches of precipitation or 500,000 to 550,000 gallons per acre per season was used. This amounts to 12 to 13 gallons per square foot per season. Recent investigation has revealed that 12 to 13 gallons per square foot is not sufficient and that 15 gallons is a more correct

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mount.
 Neither the rate of application of water nor the time intervals between applications seem to influence, to a noticeable extent, the power of water to induce growth. However, the rate of application should not be so rapid that it causes runoff. The time interval

between applications should be of such length as to allow the soil to become dry. It is the amount of water applied rather than the method of application that counts. In hot dry weather 2 to 7 applications per week will maintain a healthy, beautiful lawn.

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SECTION I — CLASS 1

Niche, A Line Arrangement of Spring Branches in an Oriental Container

MONDAY, MARCH 26

First Prize—Mrs. B. A. Willetts, Denver, 5564 E. Jefferson Ave.

Second Prize—Mrs. Holland Payne, Niwot, Colorado

Third Prize—Mrs. Stewart Shehee, 6443 S. Downing St., Littleton

TUESDAY, MARCH 28

First Prize—Mrs. Ray Carney, 6045 S. Bannock St., Littleton

Second Prize—Mrs. T. L. Lewis, 5808 Teller St., Arvada

Third Prize—Mrs. George Kelly, 4849 S. Santa Fe Dr., Littleton

WEDNESDAY, MARCH 30

First Prize—Mrs. Glenn Clayton, 4040 S. Washington St., Englewood

Second Prize—Mrs. Gerard A. Belanger, 1622 S. Glencoe St., Denver

Third Prize—Mrs. Vane Schierbaum, 890 W. 70th Pl., Denver

THURSDAY, APRIL 1

First Prize—Mrs. C. Walter Allen, 644 Monaco Parkway, Denver

Second Prize—Mrs. Paul Warren, 3160 6th St., Boulder

Third Prize—Mrs. J. Russell Easton, 3643 Jasmine St., Denver

SECTION I — CLASS 2

Pedestal — A Mass Arrangement Appropriate for Easter

MONDAY, MARCH 26

First Prize—Mrs. Albert Petrick, 3011 S. Franklin St., Englewood

Second Prize—Mrs. Bernice Lang, 7095 N. Broadway, Denver

Third Prize—Mrs. Clara Beuck, 2970 S. Sherman St., Englewood

TUESDAY, MARCH 28

First Prize—Herbert Gundell, 4032 W. Greenwood Pl., Denver

Second Prize—Mrs. L. J. Woodman, 3985 S. Pennsylvania St., Englewood

Third Prize—Mrs. E. H. Honnen, 4400 E. Quincy Ave., Englewood

THURSDAY, MARCH 30

First Prize—Mrs. George Kelly, 4849 S. Santa Fe Dr., Littleton

Second Prize—Mrs. E. H. Honnen, 4400 E. Quincy Ave., Englewood

Third Prize—Mrs. Jess Gibson, 133 N. Sherman Ave., Littleton

SATURDAY, APRIL 1

First Prize—Mrs. Stewart Shehee, 6443 S. Downing St., Littleton

Second Prize—Mrs. Bernice Lang, 7095 N. Broadway, Denver

Third Prize—Mrs. John Scott, 4550 S. Galapago St., Englewood

SECTION I — CLASS 3

Cabinet, An Arrangement Complementing a Hung Picture or Painting

SUNDAY, MARCH 26

First Prize—Mrs. C. R. Jacobson, 10150 W. 35th, Wheatridge

Second Prize—Mrs. E. F. Hennessy, 7807 Robinson Way, Arvada

Third Prize—Mrs. Jeanette George, 1750 Sunset Blvd., Boulder

TUESDAY, MARCH 28

First Prize—Mrs. Holland Payne, Niwot, Colorado

Second Prize—Mrs. William T. Eccles, 617 S. University Blvd., Denver

Third Prize—Mrs. E. H. Honnen, 4400 E. Quincy Ave., Englewood

THURSDAY, MARCH 30

First Prize—Mrs. Jeanette George, 1750 Sunset Blvd., Boulder

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Second Prize—Mrs. John Scott, 4550 S. Galapago St., Englewood

Third Prize—Mrs. J. Churchill Owen, 565 Circle Dr., Denver

SATURDAY, APRIL 1

First Prize—Mrs. Jess Gibson, 133 N. Sherman Ave., Littleton

Second Prize—Mrs. Paul Warren, 3160 6th St., Boulder

Third Prize—Mrs. John Scott, 4550 S. Galapago St., Englewood

SECTION I — CLASS 4

Easter Tables

First Prize—Mrs. Jess Gibson, 133 N. Sherman Ave., Littleton

Second Prize—Mrs. D. E. Heilman, 482 W. Caley Ave., Littleton

Third Prize—Mrs. Schuyler E. Grey, 1600 Holly, Denver

SECTION II — CLASS 1

Potted Plants

First Prize—Mrs. E. H. Honnen, 4400 E. Quincy Ave., Englewood

Second Prize—Mrs. Glenn Clayton, 4040 S. Washington St., Englewood

Third Prize—Mrs. Esther Holtz, 833 Lincoln Pl., Boulder

SECTION II — Class 2

Dish Gardens

First Prize—Mrs. Norma Lee Hunter, 279 Prairie, Littleton

Second Prize—Mrs. Elmer L. Ausfahl, 2780 S. Clarkson St., Englewood

Third Prize—Mrs. W. R. Glenn, 6147 Estes Ct., Arvada

SECTION II — CLASS 3

Garden Growings

First Prize—Mrs. Winnie Stratford, 4085 S. Grant St., Englewood

Second Prize—Mrs. Pauline Steele, 4935 Raleigh St., Denver

Third Prize—Mrs. John W. Newman, 5152 Newton St., Denver

SECTION III — CLASS 1

Doorways

First Prize—East Jefferson Men's Garden Club

SECTION III — CLASS 2

Bird Baths

First Prize—Golden Gardeners Garden Club

Second Prize—Lakes O' Bow Mar Garden Club Littleton

Third Prize—Evergreen Garden Club of Denver

SECTION IV — CLASS 1A

Plaques — Single

First Prize—Mrs. R. F. Maul, Jr., 5504 E. Jefferson Ave., Denver

Second Prize—Mrs. Alice Whitchurch, Glenwood Springs

Third Prize—Mrs. Felix C. Moody, 5524 Jefferson Ave., Denver

SECTION IV — CLASS 1B

Plaques in Pairs

First Prize—Mrs. William T. Eccles, 617 S. University Blvd., Denver

Second Prize—Mrs. Elmer Edison, 7645 W. 9th Ave., Lakewood

Third Prize—Mrs. Esther Holtz, 833 Lincoln Pl., Boulder

SECTION IV — CLASS 2

Arrangements of Artificial Plant Material

First Prize—Mrs. Holland Payne, Niwot, Colorado

Second Prize—Lee Ashley, 444 S. Jasmine, Denver

Third Prize—Mrs. John Scott, 4550 S. Galapago St., Englewood

SECTION IV — CLASS 3

Hanging Baskets

First Prize—Mrs. Elmer Ausfahl, 2780 S. Clarkson St., Englewood

Second Prize—Lee Ashley, 440 S. Jasmine, Denver

Third Prize—Mrs. L. J. Woodman, 3985 S. Pennsylvania, Englewood

Judges of the Competitive Flower Show were follows:

Mrs. Joseph Esterman, Denver

Mrs. Ray Littlejohn, Lakewood

Mrs. Owen Goodspeed, Aurora

Mrs. Ralph Lewin, Denver

Mrs. William Eccles, Denver

Mrs. L. J. Woodman, Englewood

Mrs. Stewart Shehee, Littleton



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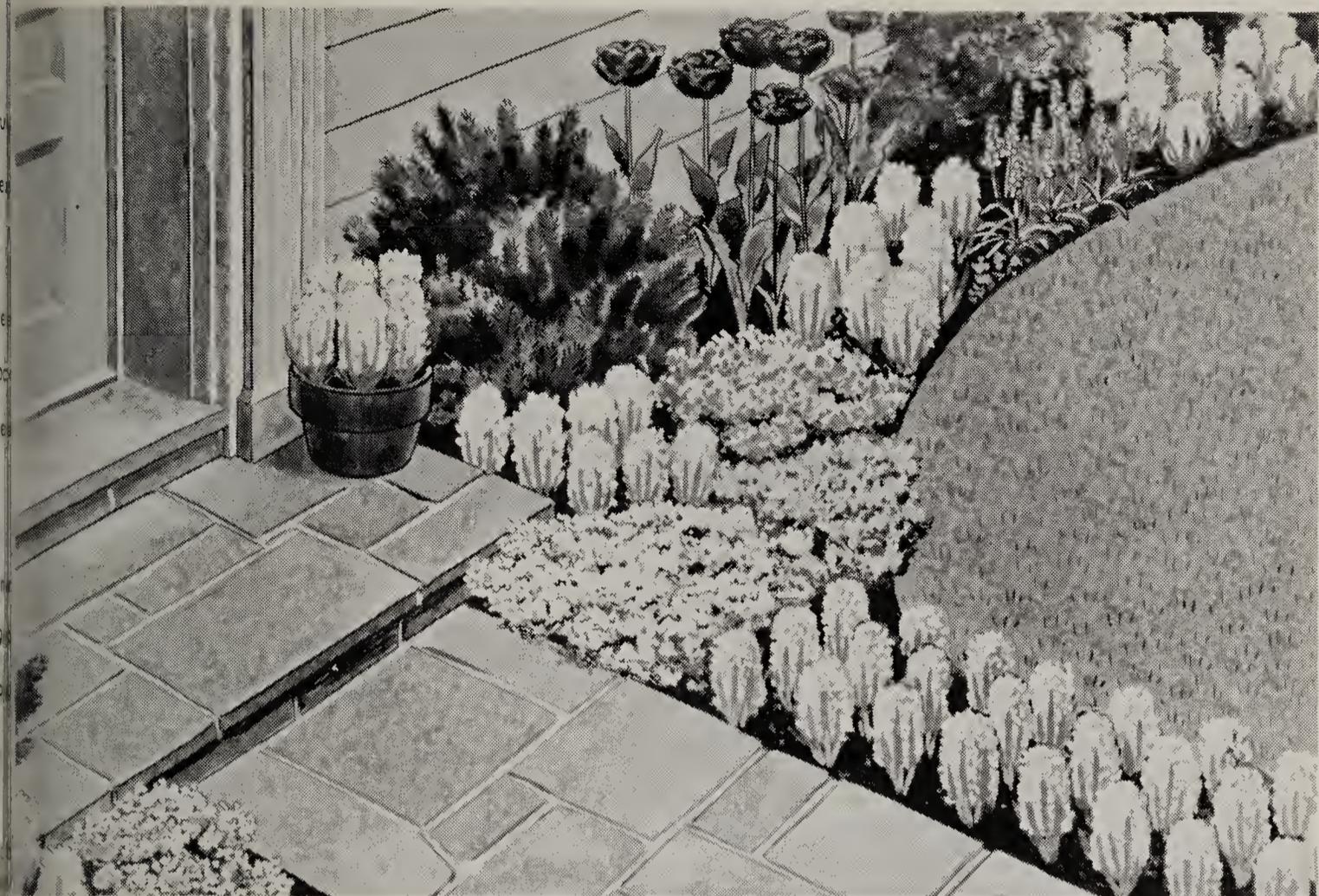
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For over 300 years the finest bulbs for spring beauty have come from the Netherlands. From generation to generation, families in the Dutch bulb industry have passed down their secrets of growing, improving and creating new varieties until today the Tulip is one of the most popular of all flowers.

There was more than fate in Holland's destiny to become the world's source for flower bulbs. Mild winters and cool summers make it an ideal climate for growing bulbs; they develop a stronger root system, storing up more plant food to produce bigger and more colorful blooms. In the loose sandy soil they grow larger and are easy to harvest in perfect condition. The canals allow complete control of the water level in the soil.

The flower buds are pre-formed inside the bulbs, awaiting only Nature's cycle of seasons to push up through the ground and burst into bloom.

Holland Bulbs Are Government Inspected

In Holland, every bulb grown is under careful supervision and must be government inspected before it is exported. The Netherlands high quality standards must be maintained. Moreover, especially with Tulips (except the species) there are minimum size regulations so that no tulip bulb can be exported which is less than 4 in. around.

Easy to Plant, Easy to Grow

Imported Holland bulbs require no special soil, and will flower beautifully even in a new home garden.

The best way to prepare the ground for beds or borders is to take out the top 5 or 6 in. of soil, loosen the soil below, and level off. Set your bulbs in place according to varieties and cover with the top soil which was removed. Where this is inconvenient, loosen the top soil to a depth of 6 in. or more before digging the holes for the bulbs.

After the blooming season has finished, the bulbs may be lifted and stored for replanting the next fall, or they can be left in the ground and plants of summer flowers set in between them. Do not remove the bulbs until the foliage has dried down.

Minor Bulbs

No garden can afford to be without the artistic touch of these charming little flowers. To thousands of people, the coming of the Crocus is the sure sign of spring.

First flowers of spring! How welcome they are, to awaken the garden from its long winter sleep. While everybody loves Crocus, many more gardeners should become better acquainted with the delightful appeal of the Snowdrop, Scilla, Chionodoxa, Grape Hyacinths, Blue Bells.

The little white Snowdrops come even earlier than the Crocus and the blue Scilla follow immediately, along with the Chionodoxa. In daffodil time come the Grape Hyacinths.

All these minor bulbs should be planted in early fall where they can continue to flourish and bloom for years to come. They may be planted 3 to 4 inches deep, either in sun or a little shade, under trees or at the base of shrubbery. They are beautiful in informal groupings, almost anywhere in the garden, particularly along a walk or in the rock garden.

Crocus are used in many ways, as a formal note in front of the border and also in informal clumps, large or small. For a "carpet of color" in early spring scatter crocus bulbs on the lawn, especially under trees, using either mixed or separate colors. Then cut through the sod with a trowel and plant the bulbs where they fall, about 3 in. deep. Do not mow the grass next spring till about three or four weeks after flowering, to allow the foliage to die down so the bulbs can bloom again the next year.



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Daffodils

One of the loveliest of all flowers for the garden, the Daffodil has won universal favor in recent years with its many new and larger flowers, graceful form, cheery colors.

Among the first flowers on the scene in early spring, Daffodils are interesting in groups along a path or drive, in a border, in front of evergreens, under trees. Daffodils bring to the early spring garden refreshing waves of golden yellow and white blooms, many crowned with orange-red — also an abundance of flowers to decorate the house.

It is possible to have Daffodils in the garden from the time the crocus finish till early May. With such a wide range to admire, it is little wonder many make Daffodils their garden hobby — there are the giant trumpets, medium crowns, small 'cups, jonquils, and others.

Delightfully informal, Daffodils can be planted in clumps or in combination with early tulips and hyacinths. Groups of blue grape hyacinths with daffodils make a striking arrangement.

A popular way to plant Daffodils is to scatter the bulbs on the ground and plant where they fall. Ideal locations are amidst shrubbery or in any area where the grass need not be cut until the foliage has dried down. These "naturalized" plantings will continue to bloom for many years.

Daffodil bulbs should be planted early — as soon as you receive them. The bulbs should be planted 6 in. apart and 6 in. deep. If the garden is dry from lack of rain, water well so the soil is damp and root growth can begin immediately.

After the ground is frozen, it is well to cover your plantings the first winter with a mulch of leaves, hay or straw, removing it about a month before coming time next spring.

Hyacinths

The stately Hyacinths occupy a place in the favor of gardeners which no other flower can take. Their delightful fragrance, perfection of form and vivid colors are unsurpassed.

Few flowers can give such lasting satisfaction or contribute so much to even a small garden. Hyacinths may be planted close to the house in groups of three to five or more. Excellent for beds and borders, impressive in massed groups.

Hyacinths also combine well in a mixed border, in front of daffodils and



early tulips. They are admirably suited for symmetrical designs and special patterns. In most regions, they bloom in April and early May.

For the largest flowers and biggest spikes, top size bulbs should be planted. For more general home garden use and larger areas, the less expensive bedding size is recommended.

Hyacinths should be planted in October or November before the ground freezes, about 6 in. apart and 6 in. deep. Where winter is severe it is advisable to cover the bed with leaves or other mulch, but not until after the ground is frozen; remove the mulch in early spring.

Apartment dwellers can also enjoy growing Hyacinths. Use top size bulbs, placing each bulb in a special Hyacinth glass. Fill with water up to but not touching the base of the bulb. Keep in a cool dark closet for about two months. Check regularly and add water as needed. When the roots have filled the glass and the flower bud is out of the neck of the bulb (1½ in. high), bring into partial light. After ten days, place in a bright and sunny window.

Tulips

Gayest and most versatile of all spring flowers are the Tulips! You may

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enjoy them for almost two months. No other flowers can bring such a wide array of gorgeous hues — a rainbow of color, at a time when color is most welcome.

Equally at home in small groups of only six or 12 up to expansive displays of hundreds of blooms, Tulips are unrivaled for setting the home grounds ablaze with color.

At their best in beds and borders, Tulips like a place in the sun and put on the best show in a fertile, loamy, well drained soil. Beautiful pictures can be created with groups of six to 12 or more at a garden gate, doorstep, around a bench or terrace. Groups of Tulips work wonders with their showy colors in the mixed flower border or in front of evergreens or shrubbery.

If Tulips were grown in the same bed last spring, use fresh top soil if possible. Place the bulbs 5 to 6 in. apart and plant them 5 to 6 in. deep. In severe climates, Tulip beds should be covered with leaves or other mulch after the ground is frozen, then removed in early spring to prevent damage from moles and mice. In the warmer climates, planting should be delayed till Thanksgiving or later.

To plant in the perennial border or elsewhere inconvenient to remove the top soil, loosen it to a depth of 6 in. or more. Then make holes for the bulbs with a trowel. Before covering be sure the bulb rests on the bottom of the hole.

If the bulbs are to be dug up after the blooming season for storing till planting time the next fall, they should be transferred to some other part of the garden till the foliage has dried. For the most beautiful display, only the largest of the old bulbs should be kept for replanting, and secure some new imported Holland bulbs each year.



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EXOTICS OF COLORADO

JAMES R. FEUCHT

In the April issue of *The Green Thumb*, Dr. Helen Marsh Zeiner presents an article entitled, "Exotic Plants—What Are They?" in which she defines exotics as "belonging by nature or origin to another part of the world." Many of our cultivated plants, and in fact nearly all of the ornamental species that we use in our landscapes, originated from some area of the world other than Colorado. A very large proportion of the now "common" species of trees and shrubs cultivated in the cities and towns of Colorado are not even native to the United States.

In this, the second of a series of articles on Colorado exotics, we will discuss some of the conifers which are widely used in Colorado home landscaping. They are well adapted to the climate but originated outside of the continental United States.

MUGHO PINE — *Pinus mugo mughus* (Scop.)

Eastern Alps

Mugho Pine is a low, often prostrate shrub, the improved cultivars of which are usually very compact. It is used in foundation plantings among other evergreens and low deciduous shrubs. Because it is easy to "keep down" it can be used under relatively low windows. It is especially suited for use in an entrance planting.

For those who desire a formal look, this shrub lends itself to shearing; the cutting is performed in mid-June. As with most of our exotics, the Mugho is resistant to many diseases and to insect attack. The most serious problem with Mugho is the Pine Shoot Moth which destroys the terminal buds. It is not too serious, however, in well established plants because the insect damage will stimulate more side-branching and thus produce a more compact shrub.

AUSTRIAN PINE — *Pinus nigra* Arnold.

Central and South Europe

Austrian Pine has become a favorite tree in Colorado and is widely planted in our city parks. It attains a height of about 90 feet. Because of its resemblance to our native Ponderosa Pine, *Pinus ponderosa*, it is often mistaken for the native. Usually, however, Austrian Pine is a much more compact tree and nearly always is a darker green in color.

As with the Mugho Pine, the Austrian Pine is relatively resistant to diseases and insect pests. It can be made more compact by "pinching" off the "candles" (new season's growth) in June to about one-half their length.

Because of its ultimate size, this tree should not be planted closer than 30 feet to a building, preferably on south and east exposures where the tree will get ample sunlight.

PFITZER JUNIPER — *Juniperus chinensis pfitzeriana* Spaeth.

China, Japan

Pfitzer Juniper is probably the most widely used low-growing, spreading

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evergreen in Colorado. It is most commonly used in foundation plantings and is one of the few evergreens cultivated in Colorado that thrives on the north side of a building.

The deep-green foliage and the graceful spreading habit provide ornamental value in a landscape all year around.

Despite its close proximity to the ground, this shrub is often destroyed by heavy snowfall due to the extremely brittle condition of the wood found in the narrow crotches of the branches. Brushing off heavy snows will avoid this problem.

Commercial nurseries carry several cultivars of this species having foliage that varies from a brilliant green to a silvery cast.

SAVIN JUNIPER — *Juniperus sabina* L. Mtns. of S.W. and C. Europe to Siberia

Savin Juniper is often used in the place of Pfitzer Juniper, however, Savin Juniper has a more upright habit and cannot be used effectively under low windows. It is best in open plantings and on terraces.

Generally, the Savin Juniper is much lighter or paler green in color when compared with Pfitzer. Some cultivars of it are distinctly gray-green in color making the shrub useful for providing contrast.

More popular is its close relative from Southern Europe, *Juniperus sabina amariscifolia* Ait. This shrub is low-growing and of the creeping habit somewhat like the Creeping Juniper, *Juniperus horizontalis* Moench. of Canada and Northern United States. The finely textured appearance and the graceful curves of the branch tips make this shrub popular for foundation plantings and for breaking up the monotony of the coarser-textured Pfitzer and Savin Junipers.

SINGLESEED JUNIPER — *Juniperus squamata* Lamb. Himalayas, W. & C. China

The Singleseed Juniper is not as common in Colorado as those mentioned previously, at least not by the same name. Nurseries carry cultivars of this species under various names. A cultivar of particular ornamental value is *J. squamata Meyeri*. The foliage of the plant resembles our western native, Singleseed Juniper, *Juniperus monosperma* (Engelm.) Sarg. and due to the similarity of common names, is often confused with the latter. In over-all appearance, the Singleseed Juniper has a very coarse texture in contrast with the Pfitzer and others. The leaves are not closely appressed to the twigs as they are in *Juniperus chinensis pfitzeriana* and *J. sabina* but resemble the foliage of our native Common Juniper of the mountain area, *Juniperus communis* L. Singleseed Juniper, however, generally has a more whitish cast to the foliage. It is very valuable in landscaping to provide contrast of texture as well as of color.

Come to the Fiesta and Plant Auction, May 20 and 21 at the Botanic Gardens House.



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THE CLIMATRON OF THE MISSOURI BOTANICAL GARDEN. PLEXIGLAS COVERING IS SUSPENDED BENEATH THE GEODESIC, DOME-SHAPED FRAME OF TUBULAR ALUMINUM.

MISSOURI BOTANICAL GARDEN

FRITZ W. WENT

In the April 1961 issue of *The Green Thumb*, Dr. Went described the history and development of the Missouri Botanical Gardens up to its current stage of growth. In the following article, Dr. Went describes in detail, the Climatron, a unique structure and the only one of its kind in the world today, followed by a resume of their educational program.

II. THE CLIMATRON

The Climatron is a large geodesic dome-shaped, Plexiglas-covered greenhouse erected at a cost of \$700,000. It has a floor space of 23,000 square feet with two separate air conditioning systems which can operate independently of each other, one predominantly during the day and the other predominant during night. Instead of maintaining a constant temperature throughout the house, a temperature gradient is created by having the air enter at one side and removing it from the opposite side of the house. During the day this results in a gradual heating of the air through absorption of radiation, whereas during night, the lower outside temperature results in the gradual cooling as the air moves through the house.

Since the two air conditioning systems work at right angles, different combinations of day and night temperatures are found in different parts of the Climatron. A hot day-hot night area designated as Amazonia reproduces the steaming jungle climate; a warm day-cool night area simulates a dry tropic climate, such as is encountered in parts of India; a third area with cool day and warm nights is typically oceanic and represents the Hawaiian area; whereas the fourth area has both cool day and cool night temperatures, simulating the climate of a mountain or mist forest. All of these different climates are present in one undivided greenhouse which, for this reason, was given the name "Climatron". Special features of the Climatron include:

1. A large pond for the growing of *Victoria regia*, tropical water lilies and

other water plants. A Plexiglas-enclosed walk underneath this pond makes it possible to look up against the underside of the Victoria regia leaves with their reinforcing structure, and to see water plants and fish all around you.

2. A number of terraced rice fields in which rice and other plants of shallow ponds can be grown.
3. A stream originating on a mountainside cascading down in a big waterfall and surrounded by lush tropical vegetation of tree ferns, aroids, ginger, etc.
4. An area with tropical cultivated plants.
5. A special lighting system which lights the entire dome at night and produces a view that is spectacular, either from the inside, outside or from the air. A rotating fixture at the zenith is specially designed to simulate sunlight and moonlight as it revolves.
6. Just inside the entrance there is a large instrument panel that indicates the operation of the different air conditioning systems, and which gives the visitor an idea of the complexity of the control system. It also indicates the temperatures in the various parts of the Climatron.
7. A system of loudspeakers reproduces the sounds of some of the animals typical of the tropical jungle, such as birds, monkeys, frogs and insects.
8. Much of our orchid collection is exhibited in the Climatron, partly by including flowering plants in such exhibits, and partly by growing these plants on man-made trees of steel pipe covered with osmunda fiber. These artificial trees offer a particularly good method of displaying epiphytes, so that they are easily visible from the walks.
9. The 70-foot height of the Climatron makes it possible to produce big height differences within the Climatron, thus the mountain rises 20 feet above the lowest level of the Climatron.

(Cont'd Next Page)

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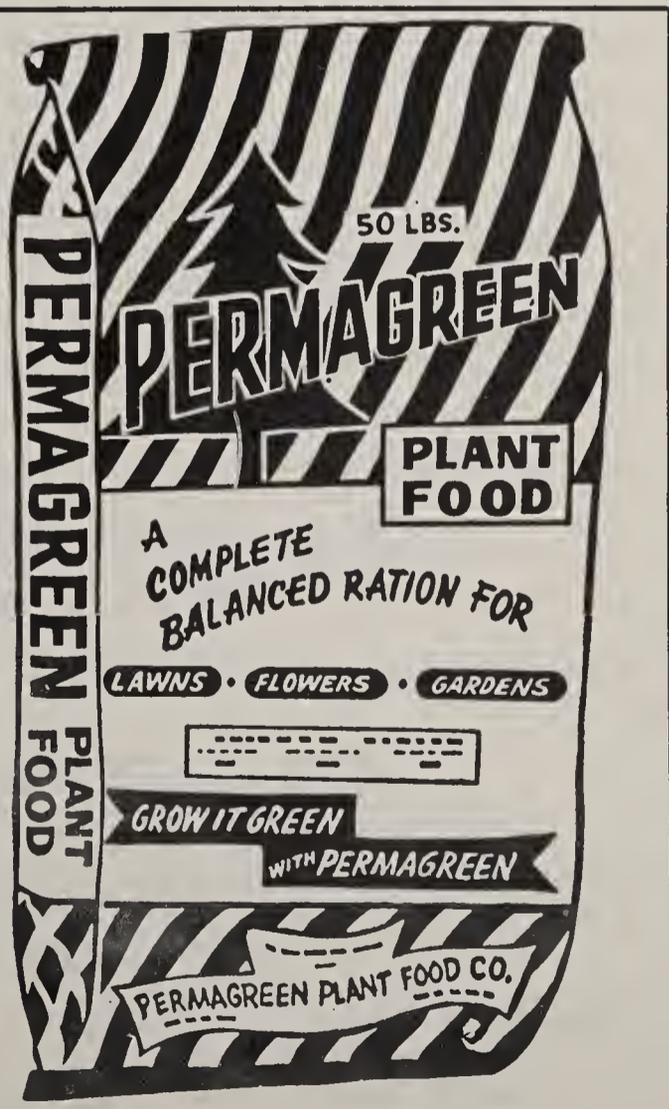
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10. With the different climates, it is possible to use the Climatron for experimental work. At present, for instance, a number of corn varieties are growing in the four major climates, and show quite marked differences in growth.

III. EDUCATIONAL PROGRAM

As mentioned previously, we believe that public education is an important function of a botanical garden, hence the Garden offers a number of courses partially for adults, but primarily for children. In addition to guided tours and classes through Garden and greenhouses, we have Saturday classes for children in age groups 7 to 10 and 11 to 18. They come to the Garden every Saturday morning to either listen to talks by the teaching staff or to do practical work in the greenhouses. During the summer the Pitzman Program offers special instruction in natural history to children between the ages of 8 and 16. Two days each week they learn about plants through observation under the guidance of competent teachers. We believe that such programs may lay the foundation for the development of future scientists, and even those who do not continue in science will have obtained an excellent insight into the life sciences, such as is difficult to give in a school.

A special feature of the Missouri Botanical Garden is the shows which are staged in the Floral Display House. Throughout the winter as well as during the greater part of the rest of the year, there are floral displays of great beauty which attract large numbers of visitors to the Garden. We also try to have educational exhibits in conjunction with these displays, so that everyone who has gone through the Garden will come away with a bit more knowledge as well as being richer from having witnessed a thing of beauty.

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Scoops by Scott

MRS. JOHN SCOTT

Along with flower arranging's recognition as a spatial art comes atomic gardening. It seems that gamma rays and cosmic rays are doing things to seeds that would have kept Grandma awake nights. Gardening publications are inundated with articles captioned "Blast Your Way Into Atomic Gardening",

The following are advantages cited by the "mutation makers": ups seed germination; plants grow more rapidly; produce more blooms earlier and larger (this latter could be a disadvantage with some varieties) plants stronger and more disease resistant. (It is claimed, for example, that zinnias have less mildew and nasturtiums fewer pests.)¹ There's much more but it'll be more fun to learn first-hand.

This recalls the gibberellic glee and spree some of us took. Gibrel is still on the market, still too expensive and (to me) still of questionable value, excepting special deadlines such as flower shows, garden shows, family reunions and extraordinary seasonal hazards. Gibrel may have a psychological effect on the gardener that can't be underestimated. It's for sure such sprayed plants are going to get maximum attention, which could be worth the price.

Money continues to be granted garden clubs by Sears-Roebuck. I've been turning where this club or district or state has received varying allotments and awards. What are we taking advantage of in this area?

Two area gladiolus shows have set their dates. According to Mr. and Mrs. Sidney L. Baldrige, the shows will be held August 6 at the First National Bank, Greeley and August 13 at the Denver U. S. National Bank, Denver.

Glads are very versatile for floral designs. They can be used for spike material filler (the bud tips can be carefully "uncovered" if more color is wanted) or a few full forms make a nice focal area.

Of interest is the *Special Census of Horticultural Specialties for 1959*

¹ Radiation of seed does not always produce desirable effects, however, and the above "advantages" resulting from radiation of seed may be apparent in only a small percentage of the total number of seed irradiated. Some irradiated seed may produce weak, grotesquely stunted seedlings and many may not survive the seedling stage due to injuries from radiation resulting in interference of certain life processes.—Ed.

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2385 S. LIPAN

(the '60 report hasn't reached me, yet) prepared by the U. S. Department of Commerce. Classified under Bulb Crops, glad corms topped the sales, but we down about 160 million from the '49 report. Iris bulbs were in second place with a 22 million lead over iris rhizomes—ninth in line. In third place were narcissus bulbs; fourth, caladium tubers; fifth, tulip bulbs; sixth, Easter longiflorum bulbs; seventh, lilies other than Easter; eighth, dahlia; ninth (already counted) and tenth, peony. Of these, only caladium, iris bulbs and the lilies show an increase during the ten-year period.

Here's a run-down on flower seeds in pounds from the same source: In the top spot, sweet peas, 377,628 pounds; trailed by zinnias with 68,199 pounds; followed by marigold, stock, petunia, snap dragon and aster. Colorado is petunia and snap dragon conscious due to Pan American's horticultural and civic influence.

The Aril Society, International, is one of the specialty iris groups affiliated with the AIS. Mrs. Marguerite De Muth, 19951 Oxnaid St., Woodland Hill, Calif. will accept your membership. I know very little about Arils, so join the ASI, hoping to smarten-up.

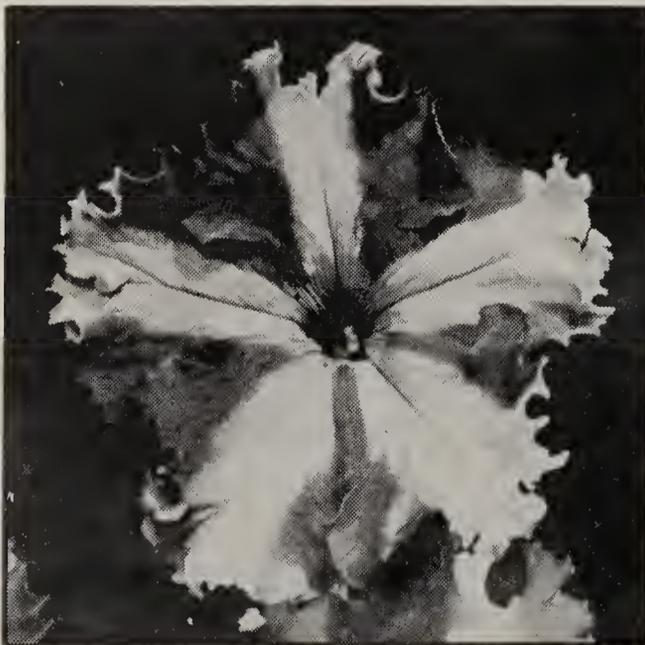
Pity the poor plants which each year must be torn between the Plain Diggers and the Rabid Flower Arrangers. The grower can't bear to cut 'em and the arranger only enjoys arranging 'em. These two factions need to merge and become Gardener-Arrangers. The gardener would learn how to bring them outdoors in and the arranger how to grow the plant materials she needs and can't beg, borrow or buy. I'm biased, too, and think that to show 'em you'd better know how to grow 'em.

BUT, there's not enough YOU for both: Then:

“Be like the bird, who
Halting in his flight
On limb too slight
Feels it give way beneath him,
Yet sings,
Knowing he hath wings.”

So said Victor Hugo on a long ago day. Think it applies today?

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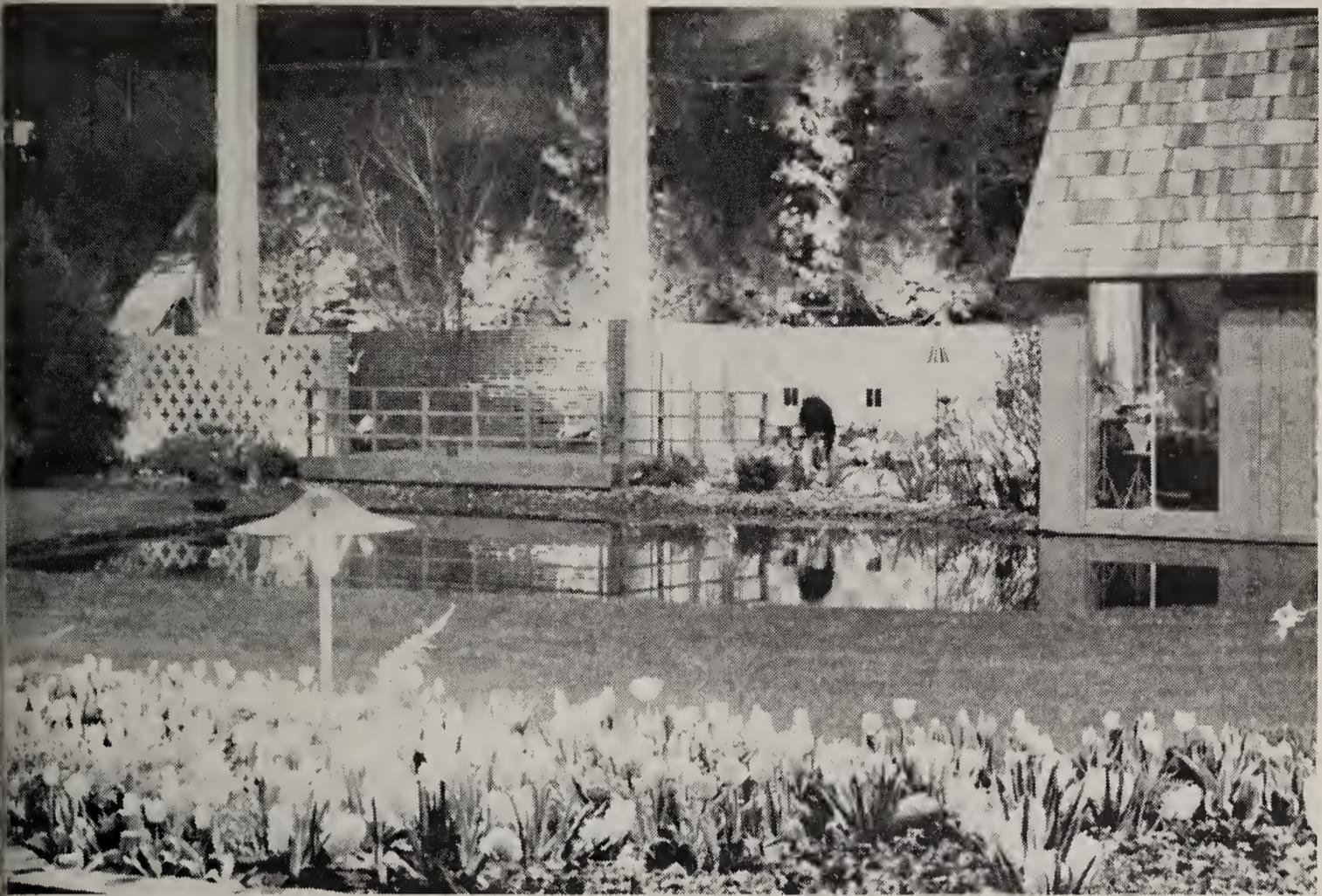
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THE COLORADO GARDEN AND COMPETITIVE FLOWER SHOW

The second annual Colorado Garden Show was bigger and better than the 1960 show. This year the show was held for 8 days, March 26 through April 2, twice as long as previously. As a result of this longer duration 10,000 more people were able to enjoy this "preview of spring." Those of you who were unable to attend may be able to picture what it was like as we take a verbal and pictorial tour through the arena.

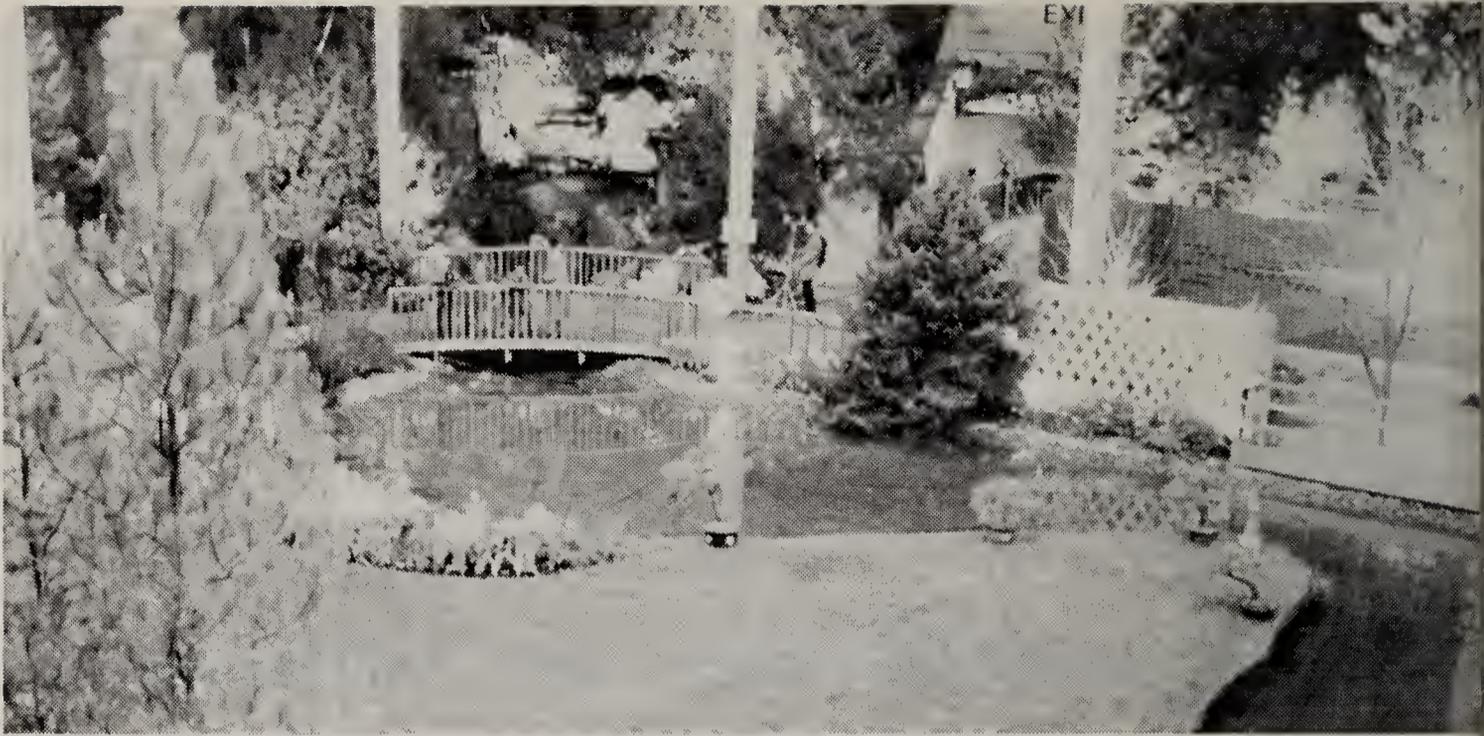
After passing through the ticket gate we find on our right the Denver Botanic Gardens booth enclosed on two sides by a redwood planter containing pyracantha, staked pfitzers, cotoneaster and euonymus. Eager volunteers, members of the Botanic Gardens, are busy talking with prospective new members receiving their free issues of *The Green Thumb*.

Continuing our walk, we suddenly come aware of a sound reminiscent of those we hear in our Rocky Mountains, the rush of water cascading over

boulders. Turning the corner, we see a huge waterfall bordered by carnations, chrysanthemums, ferns, hydrangeas and azaleas. The water, flowing over the falls at 400 gallons per minute, passes under a rustic, arched bridge and into a reflecting lake filling a large portion of the center of the arena.

Standing on the bridge viewing the entire array of the gardens in the arena we find on the left of the lake a garden court and deck. Plants in the court include petunias, primrose, chionodoxa, scindapus, rock cotoneaster and skunkbush. Near the deck is a display of large and dwarf iris. To the right of the lake is a lawn edged with many varieties of tulips, narcissus, and trees and shrubs in full leaf.

Beyond the bridge and on the right is a rock garden containing a great variety of dwarf plants, larger shrubs and low, compact evergreens. On up the walk is an overlook planted with red and pink geraniums, evergreens



THE WATERFALL, ARCHED BRIDGE AND A PART OF THE REFLECTING "LAKE".



PART OF THE ROCK GARDEN.



LILIES AMONG OREGON-GRAPE AND VINCA



THE CHAPEL AND A PART OF THE FOUNTAIN PARTERRE.

and snapdragons, followed by a "lazy-man's garden" designed for the individual with little time for gardening but with an appreciation for nature's beauties. Adjacent to this is a beautiful display of roses bordered by spreading junipers. Continuing on, we see lilies planted among Oregon-grape and backed with taller trees and shrubs. Here, protruding into the walk is a hexagonally-shaped, glass-enclosed structure housing dozens of orchid varieties ranging from blossoms a fraction of an inch in size to those the size of one's hand. Between the doors leading into the Garden Clinic area where lectures and movies are given nearly continuously is a Fountain Parterre with five fountains and pools. This display utilizes many types of ground-cover plants such as Myrtle, Wiltonia juniper, Creeping Mahonia and others as well as several types of gravel ground-covers.

Adjacent to the lake on the south is a large chapel in which an organist is playing soft music. Behind the chapel are many bonsai specimens dwarfed by special techniques making them appear to be large trees when viewed from a great distance.

In the Exhibit Building are 63 exhibits of products used in gardening—everything from insecticides and weed killers to power lawn equipment and patio awnings. Along one of the walls of this area are the Competitive Flower Show arrangements. (For a list of winners see page 135 of this issue.)

The lavish garden displays and luxurious color schemes will long be remembered by those who attended and certainly the 1962 show will be eagerly anticipated.

Garden Show Designer — Chris Moritz

Manager — Lew Hammer

Program Editor and Garden Clinic Chairman — Pat Gallavan

Flower Show officials: General Chairman — Mrs. George Kelly

Schedule — Mrs. E. H. Honnen

Entries — Mrs. Jess Gibson

Staging — Mr. Lee J. Ashley

Promotion — Mrs. John Scott

Sponsors of Gardens and Major Construction in Main Arena:

American Iris Society, Region 20— Iris display.

Bonsai Club — Bonsai display

Colorado Carnation Advertising and Publicity Committee — Waterfall

Cottonwood Garden Shop — Rock garden

Creative Gardens

Denver Botanic Gardens, Inc. — Fountain Parterre

Denver Rose Society — Rose display

Marshall Nurseries — Lazy-man's garden

Men's Garden Club of Colorado — Lily display

Misc. Cut Flowers and Pot Plant Growers Committee — Waterfall

Our Chapel of Memories — Chapel

W. W. Wilmore Nurseries — Fountain Parterre

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The National Arborist Association Says - - -

- - - GIVE FERTILIZER TO YOUR SHADE TREES

In your spring gardening activities, be sure to include an application of fertilizer for your shade trees.

Fertilizer supplies the principal raw food elements that trees need to grow and develop properly. It promotes the health that enables trees to resist the effects of drought, insect and disease attack, and numerous other adversities.

Since trees grow most rapidly during the spring months, this is an excellent time of year to apply fertilizer. It may be introduced into the soil through a series of holes made by punch bar or drill, or applied by means of compressed air or hydraulic pressure. It is important that it be well distributed in the root zone, normally 12 to 20 inches below the soil surface.

According to the National Arborist Association, the amount of fertilizer that should be applied is influenced by a number of factors. These include the age and size of the tree, the species, its general health and soil conditions. Since all shade trees periodically need fertilizer, it is wise to consult a competent arborist and arrange for applications to be made at regular intervals.

FLOWER SHOW — The B J's Garden Club of Aurora will present a flower show with the general theme "Garden Musical" on June 20. Location of the show will be announced in the next issue of *The Green Thumb*.

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HOW TO BE HEALTHY THROUGH GARDENING ¹

For many weeks a Korean War veteran had been lying on his left side refusing to take any interest in what was going on around him. He probably could not have aroused out of his depths of despondency had not an occupational therapist hit upon just the thing to strike a spark of renewed interest in life. She came in one morning with a glass tumbler filled with peat, and let him watch while she planted bean seeds in the peat and then watered it. She placed the glass where he could see it. During the next few days the miracle of rapid germination was revealed to him. He could see the tiny white roots growing against the glass, then he could see the green sprouts emerging. He began to ask questions about how such a tiny thing as the seedling could have enough strength to lift the peat. When the therapist observed enough interest in her patient she moved the glass to a table on the other side of the bed. Soon the patient had turned to his right side so that he could continue to watch this marvel of plant growth. This gave him the inspiration that he needed to regain his desire to recover. The wonderful thrill of caring for plants and seeing their beautiful development has saved many lives, strengthened weak bodies, and soothed sick minds.

Professor Donald P. Watson and Mrs. Alice W. Burlingame have, in a most interesting manner, used the theme suggested above in bringing to the reader the results of many years of research and experience in this field. The programs they present are detailed enough so that each of us who understands

¹ From the book, *Therapy Through Horticulture*, by Donald P. Watson and Alice W. Burlingame. The Macmillan Company, New York. 1960. \$4.95.

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gardening and loves to work with plants can make use of the information by applying it to our own use, if not in helping others. Of course, the intention is that we use our own knowledge of gardening, indoors or outdoors, to give those who are in desperate need of therapy the encouragement and assistance they need.

In separate chapters the authors present programs for helping children, senior citizens, the mentally ill, and special kinds of patients, such as the blind, those with heart diseases, tuberculosis patients and others. Steps for organizing programs, training volunteers, and preparing proper agreements with hospitals are given in a very clear and straightforward manner. An idea of how complete the information is can be gained from telling that they even list the items we should include in a work basket to be taken along to help those confined to a hospital ward.

Another chapter we will all welcome is the one on resources. Here you may obtain names and addresses of all kinds of suppliers of plant materials, gardening aids, information and even training movies.

This treasure of information, packed concisely into 129 pages (not counting a most helpful index), includes 14 pages of "therapeutic evaluations." Now do not let the latter frighten you, as the information is given in non-technical terms which tell of the healing values (or possible dangers) of such things as clipping grass, digging with a trowel, hoeing, pulling weeds, pushing a lawnmower, planting seeds and bulbs and other activities.

M. L. S.

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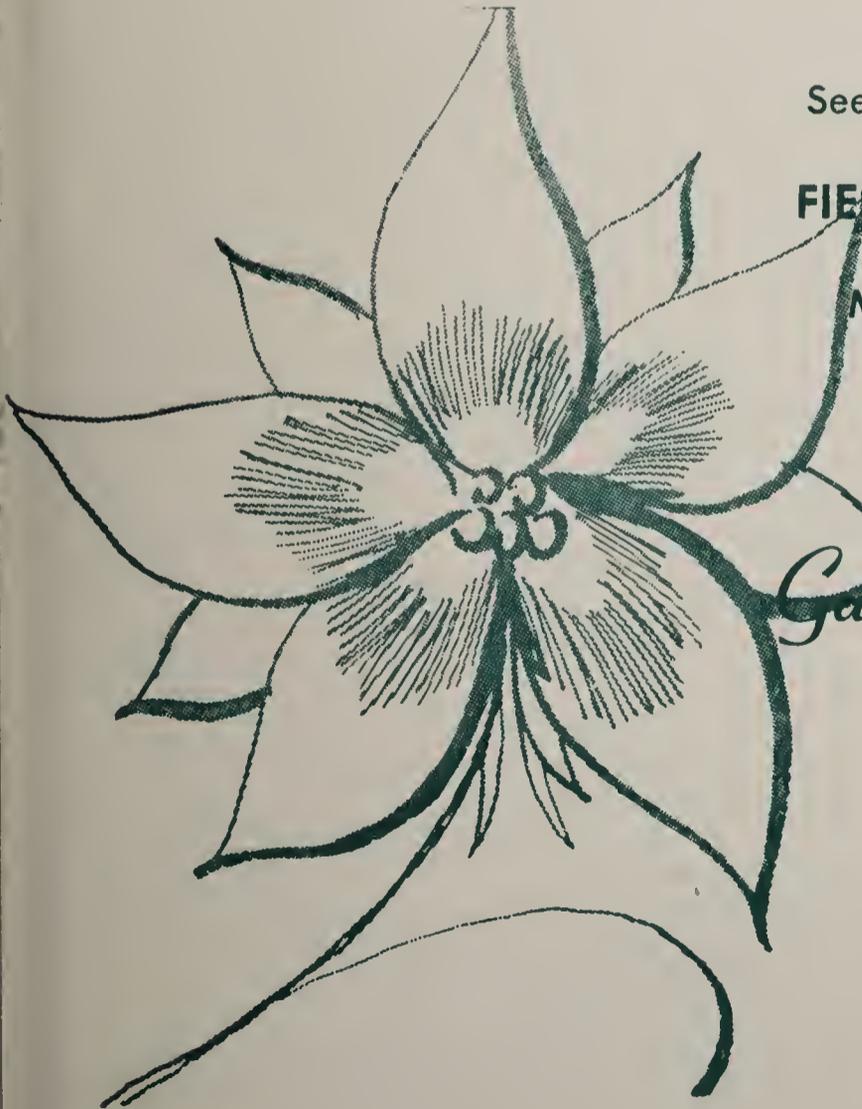
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The Green Thumb

JUNE, 1961

25 CENTS

Magazine for Rocky Mountain Gardeners





You are invited to enjoy
The 13th Annual
Denver Rose Show

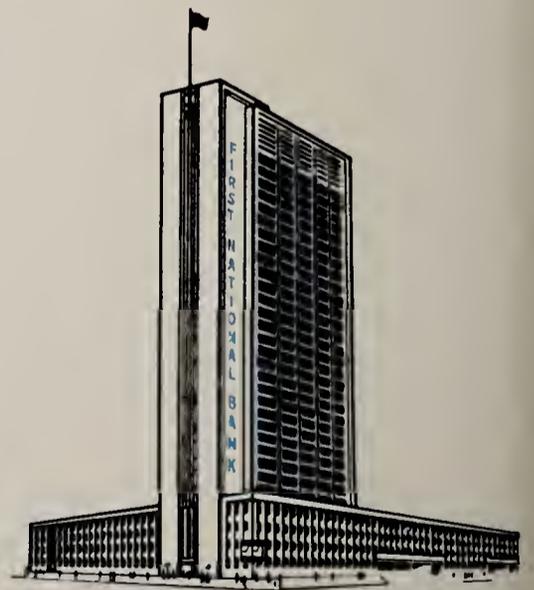
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Sunday, June 25, 1961
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JUNE

The Green Thumb

Vol. 18

No. 5

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Editor

To conduct research on plants, both native and exotic, in varied plant zones of our region, to evaluate their economic, medicinal and horticultural potentials.

To coordinate the knowledge and experience of botanists, horticulturists and gardeners.

To educate the public in the best use of horticultural materials.

To maintain a large collection of plant species and varieties for study and display.

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THE COVER

Christian Dior, Hybrid Tea rose. A 1962 All-America selection from the Conard-Cory Co., West Grove, Pennsylvania.

Members



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909 YORK ST.

DENVER 6, COLORADO

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Calendar Of Events

Every Saturday Morning—9:10 a.m.
KLZ Radio. Various Gardening
Topics by Herbert Gundell, Denver
County Agent.

Every Saturday Afternoon—4:30 p.m.
KLZ - TV Channel 7, Gardening
Program by Herbert Gundell.

Every Tuesday Evening—8:30 p.m.
KRMA-TV Channel 6. Mile-high
Gardening Program. George Kelly,
host.

At Botanic Gardens House

June 1—7:45 p.m. Orchid Society

June 2—7:30 p.m. Landscape Con-
tractors

June 5—9:30 a.m. Botanic Gardens
Junior Committee

4:00 p.m. Childrens' Group

June 6—1:00 p.m. Mountain View
Garden Club

8:00 p.m. Tree Class. Dr. A. C.
Hildreth

June 7—4:00 p.m. Childrens' Garden
Group

7:30 p.m. Botany Club

June 8—2:00 p.m. Green Thumb
Editorial Committee

7:30 p.m. Rose Society

June 12—10:00 a.m. Judges' Council

June 13—10:00 a.m. Herbarium
Study Group. Mrs. Kalmbach

4:00 p.m. Citizens' Park & Shade
Tree Committee

7:30 p.m. Evergreen Garden Club

June 15—10:00 a.m. Colorado Fed-
eration of Garden Clubs State Board
Meeting

June 16—7:30 p.m. Landscape Con-
tractors

June 20—12:00 noon. Sloan's Lake
Garden Club

6:30 p.m. Patio Planters Garden
Club

8:00 p.m. Tree Class. Dr. A. C.
Hildreth

June 21—9:30 a.m. "Fun with Flow-
ers" Workshop

June 28—10:00 a.m.-5:00 p.m. Ter-
race and Garden Tours

July 3—9:30 a.m. Botanic Gardens
Junior Committee

July 5—7:30 p.m. Botany Club

July 6—7:45 p.m. Orchid Society

July 7—7:30 p.m. Landscape Con-
tractors

B.J.'s Garden Club of Aurora—8th Annual Flower Show. Tuesday, June 10, 3:00 - 6:00 p.m., St. Pius 10th Church, 13th and Xanadu. Open to the public.

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NOTES AND NOTICES

DENVER ROSE SOCIETY ROSE SHOW—On June 25 the Denver Rose Society will stage a rose show in the lobby of the First National Bank of Denver. There will be approximately 800 rose exhibits. Doors open at 1:30 p.m. and close at 5:30 p.m. (For more details see pages 181 and 182.)

GIFT ACKNOWLEDGEMENTS—A sincere "thank you" is extended to the members of the *Crestmoor Park Garden Club* for the handsome lectures which they gave to Denver Botanic Gardens and to the members of the *Open Gate Garden Club* for the attractive and much-needed luncheon trays they recently presented to the Botanic Gardens.

BOOKS AND BOOKLETS FOR SALE—The following books and booklets may be purchased in the office at Botanic Gardens House, 909 York Street:

Around the Seasons by S. R. DeBoer.....	\$1.00
Meet the Natives by M. Walter Pesman.....	3.00
	spiral binding 3.00
	regular binding 3.00
Mountain Wild Flowers, a museum pictorial.....	1.00
Colorado Evergreens by Robert E. More.....	2.00
How to Grow Good Gardens in the Sunshine States by George Kelly....	3.00
	spiral binding 3.00
	regular binding 3.00
Saga of a Forest Ranger by Len Shoemaker.....	5.00
The Secret of the Green Thumb by Henry and Rebecca Northen.....	5.00
Twig Key (Identification of trees and shrubs in winter) by William Harlow	0.00
Fruit Key (Identification of plants by their fruit) by William Harlow....	0.00
What Tree is This by the Denver City & County.....	0.00
Nature Games by Nesbit.....	0.00

ARTICLES OF LASTING INTEREST—In past issues of *The Green Thumb* are several articles of interest to today's gardener. Copies may be obtained from Mrs. Helen M. Vincent at Botanic Gardens House. Among such articles are: Lilacs for Colorado by Milton J. Keegan. *The Green Thumb*, vol. 1, number 7, December, 1944. Beautifully illustrated. Price—10 cents. Flowers and Gardens of the Central City Region. A well illustrated issue by several authors. *The Green Thumb*, vol. 3, number 4, July-August, 1944. Price—50 cents. Hawthorns by M. Walter Pesman. *The Green Thumb*, vol. 3, number 5, May, 1950. A descriptive article and completely illustrated. Price—10 cents.

DENVER BOTANIC GARDENS NOTE PAPER AVAILABLE—Send your personal notes to your friends on our new note paper with Botanic Gardens House etched on the front. Available from Mrs. Vincent, Botanic Gardens House, at \$1.00 per box.

QUESTIONS AND ANSWERS—To date we have received only one question through the mail for the "Questions and Answers" column. The single question came from A. H. MacAndrews of Syracuse, New York and was answered by return mail. This practice will be followed until we have a sufficient number of questions to print a column in *The Green Thumb*. Certainly, many of you readers have gardening questions that you would like to have answered and would be of interest to other readers. Send your questions *now* to Mrs. J. V. "Pete" Petersen, 909 Ridge Rd., Littleton, Colorado. Questions considered of general interest to *The Green Thumb* readers will be answered in a future issue.

TERRACE AND GARDEN TOUR

JUNE 28

On June 28 the Terrace and Garden Tour will be held from 10:00 a.m. to 3:30 p.m. The tour is sponsored by the Garden Club of Denver and will benefit the Denver Botanic Gardens.

This year the Tour will include eight gardens and will emphasize the use of gardens as an outdoor livingroom. The gardens to be shown are as follows:

MR. AND MRS. EDWARD H. HONNEN

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Atmosphere of an English country house — surrounded by a singular collection of uncommon and well-established trees and shrubs.

MR. AND MRS. ATWILL GILMAN

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Interesting combination of traditional and contemporary interior. Leads to a charming, white-washed country garden.

MR. AND MRS. HOLBROOK MAHN

3800 E. Quincy Ave.
Englewood

Dramatic use of contemporary materials inside and outside of this bi-level home in harmony with the significance of setting and view.

MR. AND MRS. WALTER W. HUNZICKER

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A two-level garden with well designed brick terrace and flower beds above. A path to the upper area is planted in an attractive and naturalistic setting.

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MR. AND MRS. JAMES STOKES

555 S. Elizabeth
Denver

An inviting entrance leads through a formal foyer to the spacious terrace, perennial garden, tennis court and spectator area.

Tickets are \$2.50 per person and are available from Mrs. Raymond Sargent, 2124 E. 4th Avenue; Mrs. Vincent, Botanic Gardens House, 909 York Street, and from the following nurseries and garden stores:

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AMERICAN SOCIETY OF LANDSCAPE ARCHITECTS TO MEET JULY 10-12

A meeting of many of the nation's professional landscape architects will be held at the Harvest House Hotel in Boulder, Colorado, July 10-12.

The general theme of the meeting will center around our "arid west" and how to make it more livable through landscape architecture. Those who attend the meeting will hear speakers such as Dr. Richard G. Beideman, Professor of Biology at Colorado College, discuss "Life Zones from Plains to Peaks"; Sib Moholy-Nagy, Professor of Architecture, Pratt Institute, Brooklyn, New York, who will speak on the subject, "Buildings and Back-grounds" and many other speakers and panels discussing our present problems and practices in Landscape Architecture. In addition to topics concerning landscape architecture, scientists from the Boulder laboratories will tell of some of the work carried on in the fields of science as an educational gesture to those in the practical arts. Represented in this session will be Dr. A. C. Hildreth, Director of the Denver Botanic Gardens and previous director of the Cheyenne Horticultural Field Station, Cheyenne, Wyoming. Lay member on this panel will be the well-known editor and publisher, Mr. John B. Jackson of Santa Fe, New Mexico, whose magazine *Landscape*, brilliantly covers world-wide use of urban and rural land.

Plan to attend the Boulder meetings. For more information concerning the program write Sam Huddleston, General Chairman, 2395 South Josephine Street, Denver 10, Colorado.

DR. FEUCHT TO RESIGN BOTANIST-HORTICULTURIST POSITION

It is with deep regret that we announce the resignation of Dr. James R. Feucht from our Botanic Gardens staff effective the 23rd of June. He has accepted the position of Assistant Professor of Ornamental Horticulture at Rutgers, the State University of New Jersey.

Dr. and Mrs. Feucht, their daughters, two-year-old Debby and baby, Lisa, will leave the last week of June for New Brunswick where he will enter upon his new duties the first day of July.

In his letter of resignation he mentioned considerably higher salary, more frequent and much larger pay increases and greater opportunity for experimental research in plant science as his reasons for accepting the New Jersey position.

We all regret that budgetary limita-



JAMES R. FEUCHT

Maynard Photo, Denver

tions prevented the Denver Botanic Gardens from offering him a more adequate salary and that we could not provide facilities and opportunities for

research in plant science for which he is specially trained and which our region so much needs.

His most significant accomplishment was his taking hold of our Green Thumb Magazine in a masterful way, improving its quality and increasing the advertising. In addition, he has rendered valuable assistance in planning and laying out garden plantings, in our information service and in our educational program, particularly the children's garden project.

We hope that whenever he returns to his native state of Colorado he will visit the Denver Botanic Gardens and

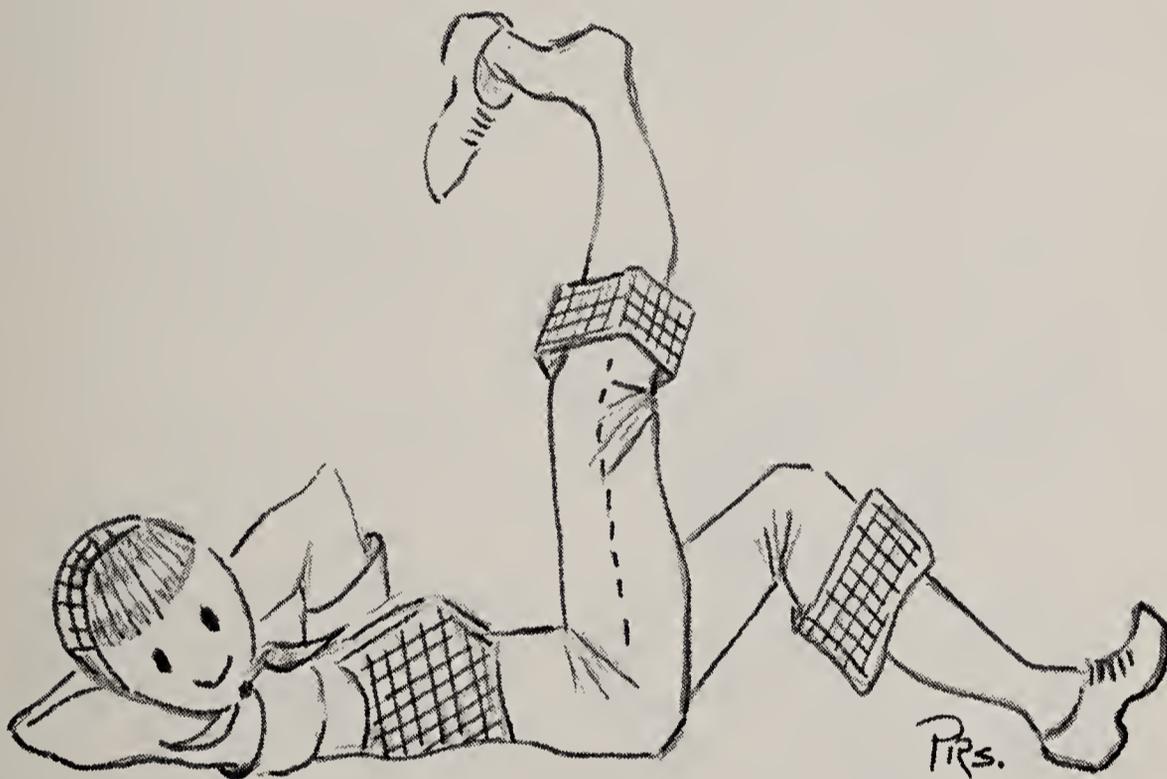
see the results of his earlier efforts. Who knows but that the turns of the wheel of fortune may in the future bring him back to Denver as a permanent member of our staff.

I am certain that the Board of Trustees and all the members of the Denver Botanic Gardens join me in saying "Thanks, Dr. Feucht, for a job well done and our sincerest good wishes for your success in your new position."

LAWRENCE A. LONG
President, Board of Trustees
Denver Botanic Gardens

Pete

Ponders



Dear Pete,

For three consecutive years we endured severe hail damage here at Brush, Colo. A soft maple, planted near the kitchen window for quick shade, has been extremely chlorotic ever since. Do you have a good home remedy?

In-A-Lather

Dear Brushless,

Yellowing foliage, usually a symptom of either a deficiency or unavailability of iron to the plant, is very prevalent in soft maple. For this rea-

son, perhaps hackberry would have been a better kitchen tree. Doubtless, a professional arborist would inject iron in gelatinous capsules into the trunk. Earl Sinnamon, family tree surgeon suggests this home remedy: With an auger, drill holes in the soil about eight inches deep and about 18 inches apart out from the trunk. Into these holes pour iron sulphate at the rate of one-half pound for each three inches of trunk diameter plus one pound of complete fertilizer for each three inches of diameter. Soak the

soil thoroughly. A supplementary foliar feeding may be given in July.

Dear Pete-unia,

After visiting our garden club my childhood friend suggests when she is *older* she will join a garden club. At 33 she prefers bridge, golf, and bowling. Is plant-loving a sign of old age?

SADiola



Dear GLADIOLA,

It can't be! I suffer the same symptoms!

Witness hundreds of children participating in gardening exhibits at 4-H Fairs in this region. Examine the lives of Liberty Hyde Bailey and Alice Eastwood whose love for plants flourished from age 9 to 90.

It's everyone to his own choice, but I prefer a spade under my foot to one in my hand.

Dear Pete,

Our new home in an established neighborhood was especially attractive because both the house and ground have that lived-in look. To our dismay those ugly blue bells are among the garden inhabitants. I think some call them the cancer of the garden? Is there any cure?

Blue Bell

Dear Blue Belle,

Several years ago Max Bauer gave them the gong with an application of Potassium Cyanate. (The material used to exterminate ants and criminals is Potassium Cyanide.) In early June he sprayed the plants with a solution of 5 ounces Aero Cyanate per gallon of water. No new plants appeared until September of the same year. The following June, by repeating the application, he completely cleared the plot of Blue Bells. All spraying was done on windless days.

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Good grooming begins in the garden. Assuming that you have carefully selected your roses, prepared the soil properly and planted them correctly, you are now ready to take the most important step in the growing of good roses, namely, a systematic program of maintenance.

Roses need not be pampered as much as many people claim. It is true that to grow good roses we must give them a deep, copiously applied watering at the time of planting and throughout the growing season, that we should give them supplemental feedings and that periodical spraying or dusting is necessary to control pests, but this is also true of most all of the other ornamental plants we cultivate. By following the simple steps and "hints" in the next few paragraphs you will be able to grow *good* roses yet give them little more attention than the rest of your garden plants.

Early in spring, after the mounds of soil placed for winter protection have been removed, a good cultivation and weeding is in order. Care should be taken not to disturb the feeder roots that often grow near the soil surface. Roses do not thrive well when the soil surface is too compact. Far better results have been obtained in our garden by using both a light cultivation and the application of a mulch. A mulch consisting of weed-free compost or peat and well rotted cow manure has served best.

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When watering, remember that red roses require more water than the lighter-colored varieties and should have some afternoon shade, if possible. In this area of high light intensity and frequent windy days, it is best to provide some protection for the roses by well placed plantings. This should be considered when laying out a new rose garden.

When the new growth is about four to six inches tall it is well to apply balanced fertilizer to the soil. Always water the fertilizer in well. After the first profuse bloom, fertilize again.

Foliar feeding can be done to supplement the regular fertilizing program throughout the growing season, if needed. Many of the pest control sprays in use today are compatible with the liquid fertilizers used in foliar feeding. Considerable time and effort can be saved by mixing them and thus applying food and protection from pests all in one operation. After about the 15th of August, cease using fertilizers that are *high* in *nitrogen* for this will allow the plant to reduce in growth activity and better prepare it for the hardening-off process in fall. Phosphorus, on the other hand, encourages hardening-off.

As far as control of the few pests that attack roses in this area, an all purpose spray or dust is usually quite effective. Our number one fungus problem, mildew, is readily controlled with a small amount of detergent and magnesium sulfate. If more drastic treatment is required, karathane or acti-dione is effective. Always use caution when spraying roses. If applied when the leaf surface temperature is too high, spotting will result. If you plan to exhibit roses, try to time your feeding, watering and spraying program so that the plant will be at their best when exhibit time approaches.

With a little patience and care, you can have a beautiful and long-lasting display of roses to enjoy in your out-door livingroom.

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Photo Courtesy of the Soil Conservation Service

MAKING THE PLAINS LIVEABLE

CHRIS G. MORITZ, *Landscape Architect*

It is more than ten years ago that I first came to Colorado. I still remember very distinctly the impression I had travelling on the train from Chicago coming from a densely populated, naturally wooded and intensively cultivated Europe. What a desolate country are these Plains, a country without any trees for miles where grasses are the natural vegetation. It was then that I realized strongly that it is the creation of limited spaces, of protection and privacy that is the most important factor adding to the liveability of the Plains. Planting is one of the best ways to achieve liveable spaces. The early settler of the Plains realized this. Whenever water was available they planted groves of trees around their homesteads. Soon trees grew along their irrigation ditches too and cities looked like oases.

It is this creation of useable, liveable and enjoyable outdoor spaces that

is one of the basic objects of landscape architecture. Building architecture is concerned largely with creation of indoor spaces, with outdoor spaces only as far as grouping of structures is concerned. Landscape architecture is concerned with the spacial design of all outdoor elements. Oftentimes we lack the proper spacial feeling for outdoor spaces when we drive through the countryside, because we are already inside a spacial enclosure, our car. Just compare the impression you get when you step out of your car between Green Mountain and Hogback on Alameda, a foothill valley with hardly any tree growth, with the impression you get stepping out of your car in the Park Hill area, for instance. Talking about creation of liveable outdoor spaces, let us first of all consider the backyard, or should we call it the garden? A yard to me means the portion of the site that comes with the house, more or less a necessary evil. You do

as little with it as you have to. The word garden, on the other hand, originally meant a cultivated plot for growing vegetables and cutflowers, fenced in with "gerthen" (stakes) to keep neighbor's dogs and children out. When the yard is being fenced and cultivated it becomes a garden. We are in a fast transition period towards a liveable garden. This garden will provide privacy for leisure time outdoor activities, it will provide utility areas and it will include more and more areas where we can cultivate our favorite plants. Let's make zoning regulations follow this trend and allow for privacy by adjusting fence regulations. I hope just as much that outdated building codes will finally acknowledge and allow use of new existing materials that will make utility poles and overhead wires a thing of the past.

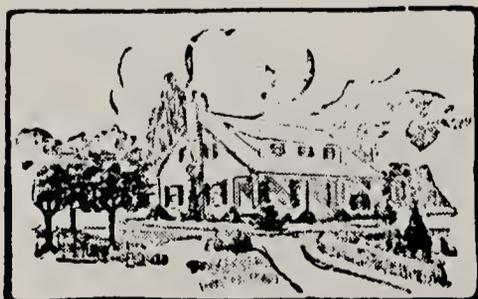
The trend from the old "mansion" sitting high above the surrounding grade towards the rambling ranch style home squatting on the ground is another factor that increases the liveability of our outdoor spaces. We acquire an entirely different attitude towards outdoor space as soon as we are on the same level with it. Maybe we will learn eventually too, that this trend is making our dear old foundation planting a thing of the past. If the modern home is well designed there is no need to hide it behind an

excessively high planting. (Heaven knows where the habit came from to use an upright juniper on each corner of the house. It does not make any sense to me.)

With the ranch style homes came the popularity of terrace or patio. We prefer to use the word patio, indicating that we prefer the Spanish idea of having an enclosed sitting area open to the sky. We should follow the Spanish example at least to the point that our patio has an enclosure from two sides. It will mean more comfort and liveability to us.

In our Colorado summer climate we often find our gardens most comfortable in the evening after sundown. Outdoor lighting has done a lot to extend the liveability of our gardens during those evening hours. We are still in the initial experimenting stages with outdoor lighting and a lot of refined lighting techniques are yet to be worked out.

In recent years maintenance has been a factor that acts as a deterrent for many people to really enjoy the outdoors. Some people constantly cite all the chores that are connected with their yard instead of starting to enumerate all the joy they can derive from pleasant surroundings and from seeing plants develop and grow. The attitude with which you do your outside work



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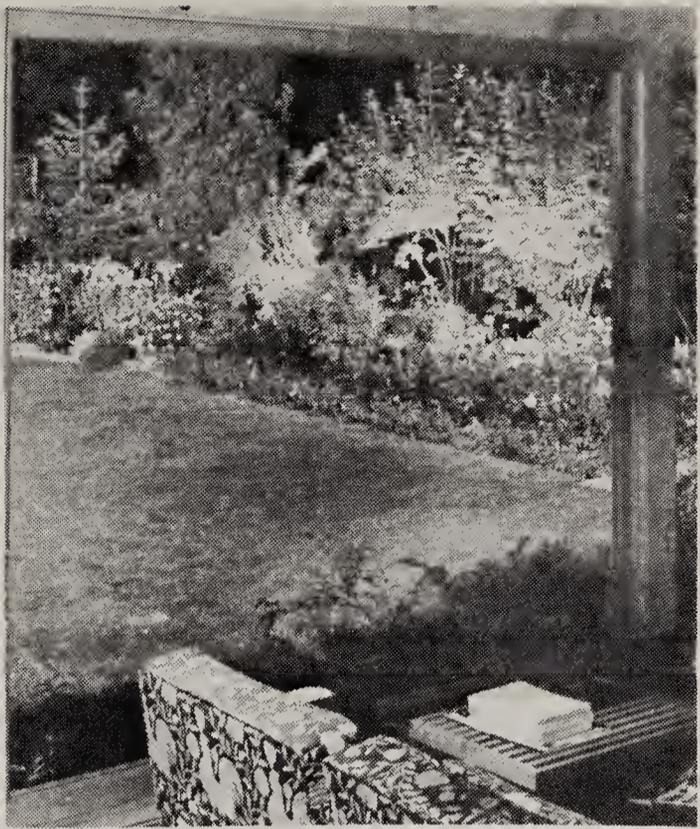
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makes the difference between chore and fun. I am sure that we can stimulate a lot of interest and an entirely different attitude towards living plants if we start teaching our school children the principles of plant growth on living examples right on the school grounds. As those children grow up they would have a different attitude towards a subdivision developer who first has to clean all existing plant growth off his site with his dozer and destroy the liveability of his subdivision before he starts building it. If these children learn something about soil and how long it takes Mother Nature to just build up an inch of topsoil, they would get an entirely different attitude towards conservation practices. How long can we afford to clutter up our landscape with all kinds of junk pro-

ducts of our technical age. A foreign architect, after touring this country, remarked "The American leaves a path of ugliness wherever he goes"—starting from beer cans after a picnic to dwellings built the cheapest way permissible to last the thirty year mortgage period and from poor grading resulting in erosion to air and water pollution by industry.

If we want to make the plains more liveable, we cannot just look at our own backyard and let our neighborhood and our city be ruined. We have to realize that anything that happens to our environment effects us too. What happens to our environment effects the real estate value of our property as well as our mental and physical well being. Therefore the environment we live in should be of concern to us.

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One way to assure a more liveable environment is by good planning practices and by carrying out those plans. Lots of good ideas are being put on paper and never carried out. We are talking ourselves out of a lot of enjoyment with the excuse that we cannot afford it. The true reason is that we do not realize how badly we actually want true liveability of outdoor spaces. We often do not realize that our environment influences us constantly and that a pleasant environment can mean a lot of joy and satisfaction for our daily living.

Looking at our environment on a citywide basis, what are we doing to improve the liveability of our cities of today and what is even more important to make sure our cities of tomorrow, the cities for our children, will be at least as liveable as ours are. It seems to me we are resting and enjoying what 30-60 years ago a generation with foresight has done for us. Park- and parkway systems of most Colorado cities have been acquired for us a long time ago. People at one time claimed that the City of Denver was building parkways for Kansas City. Now we are glad those parkways in

East Denver were built. They contribute a great deal to the liveability of this city. I suppose, everybody realizes that a treeless city in this sunny and dry climate would be an unbearable place to live. If Denver would be a city without trees its chances for future growth would be rather slim.

Higher birth rates in the U. S. in recent years, a movement of people towards population centers, an increasing percentage of old people with leisure time, shorter working hours and more leisure time for everybody and ready availability of private cars are the trends of our days. Since 1940 in the U. S., growth in city park acreage has not kept pace with population gains. Joseph Prendergast summed this up in the following warning: More and more people and more and more time for recreation and less and less space in which to use it.

We ought to increase our efforts in setting aside enough land now for the development of future parks and parkway. What we need is an intensive education to make people realize the values of good planning, of park development and of making their cities more liveable by good landscaping.

Attend the Denver Rose Show, June 25, 1:30 - 5:30 p.m. First National Bank of Denver

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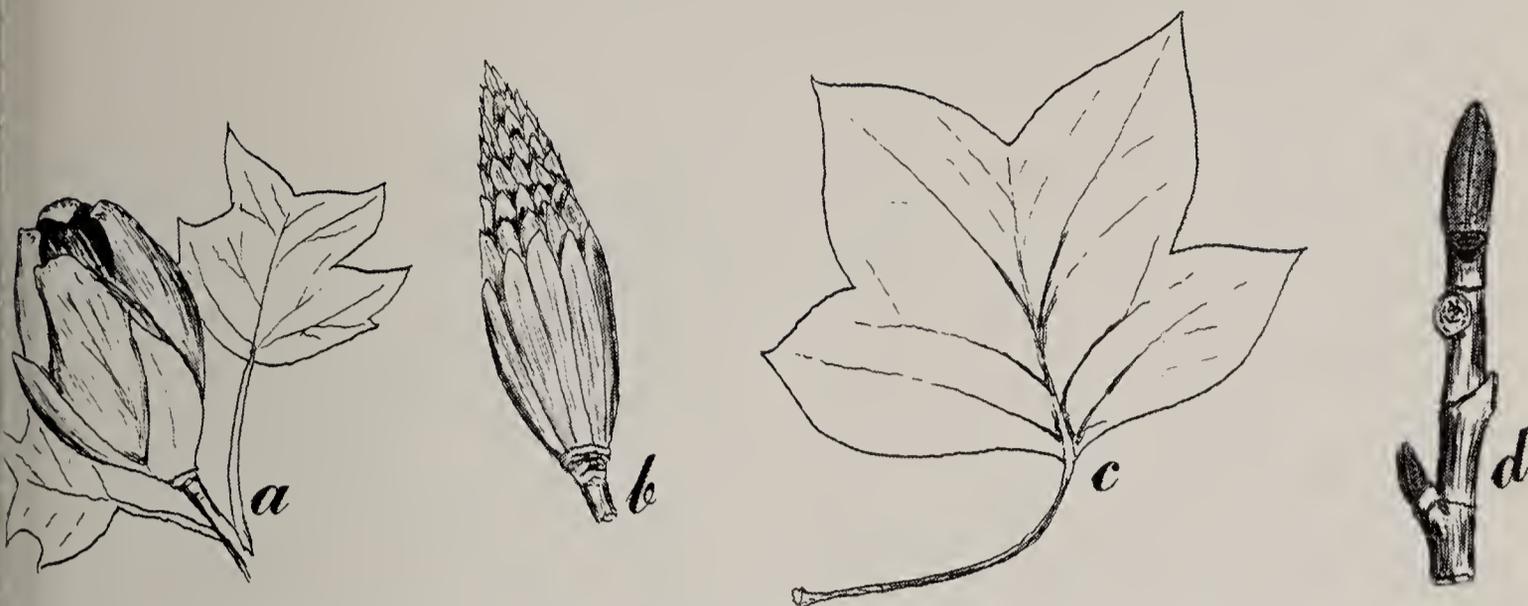
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THE FLOWER (a), FRUIT (b), LEAF (c) AND TWIG (d) OF TULIP TREE

THE TULIP TREE

HELEN MARSH ZEINER

Liriodendron tulipifera, the Tulip Tree, is an exotic of Colorado which can be found occasionally in Denver and which has possibilities for the area. While exotic to Colorado, the tulip tree is native to the eastern half of the United States, with a natural range from southern New England through New York to southern Wisconsin and southward to northeastern Alabama and northern Florida. In its native habitat, the tulip tree is a very large and valuable tree, reaching heights of 150 feet and diameters of eight to ten feet. It is a desirable lum-

ber tree, growing very straight and producing an easily worked, even-grained wood. In the lumber industry it is known as yellow-poplar or white-wood, however, it has no relationship whatsoever with the poplars. The tulip tree is, in fact, a member of the Magnolia family!

The tulip tree is named for its showy flower, which is tulip-like or bell-shaped, greenish yellow and sometimes tinged with orange or orange red. *Liriodendron* literally means tulip or lily tree. The flowers usually appear in May or June and are followed by

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an upright cone-like fruit about three inches long. The fruit contains winged seeds which are carried away by the wind. The "cone" can be seen even after the leaves drop in the autumn.

Although the name comes from the flower, the large leaves are very distinctive in shape, and might be likened to a modernistic tulip design! The tip of the leaf appears as if it was cut off with a pair of shears, leaving a broad, shallow notch which the botanist refers to as truncate. In addition to the two lobes at the apex, there are two lobes at the base, adding to the tulip-like appearance.

The bark on large trees is deeply furrowed and grayish; on young trees it is rather smooth, but the pattern of the furrows can be seen. The color and the pattern make a very attractive trunk.

The winter buds are unique and interesting—they are blunt and flattened with two large bud scales, making a "duck bill" bud.

Tulip tree grows tall, straight, and narrow, with short side branches. It has a deep root system.

This handsome tree was made the state flower of Indiana in 1923. It has been reported as the second largest tree in Indiana.

In its native areas, the tulip tree prefers a moist, rich, well-drained soil and thrives best in protected coves and lower parts of slopes of hills, always growing with other deciduous trees. As one might guess from this, the tulip tree is difficult to grow in Denver and must have good soil and some protection. It can be done, however, and once established it is a very rewarding tree. While it grows rapidly in its native habitat, it is a slow grower in Denver and size should never become a problem. Young trees can now be obtained locally. Two or three established Tulip Trees are growing in City Park next to a planting of evergreens close to the 17th Avenue entrance nearest to Colorado Blvd. Here the trees are well-protected, but they are also crowded, and they are not specimen trees. A very fine specimen can be seen in front of a home on the west side of South Franklin St. in the 400 block just north of Virginia Ave. This tree is easy to find if you watch for the Fire Station at the north edge of Washington Park and then walk north on Franklin about half a block. There is also a tulip tree at 2329 S. Corona St. Denver has other tulip trees whose location has not been reported and *Green Thumb* readers would like to hear about them. Can you add to our list?

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GOLDEN SLIPPERS ACHIEVES A COLOR BREAK AMONG FLORIBUNDAS WITH ITS DISTINCT PETALS OF FLUORESCENT ORANGE AND GOLD. ITS UNIQUE COLORING BEGINS IN BRILLIANT GOLD BUDS THAT ARE FLUSHED WITH RICH BLOOMS OF GOLDEN SLIPPERS DISPLAY THE UPPER PETAL SURFACE OF GLOWING ORANGE VERMILION, CONTRASTED BRILLIANTLY BY RICH, GOLD COLOR ON THE LOWER SURFACE.



KING'S RANSOM IS THE FIRST YELLOW HYBRID TEA TO TAKE AARS HONORS SINCE 1910. FULL, LARGE FLOWERS OF FIVE TO SIX INCHES ARE BORNE IN GREAT ABUNDANCE ON LONG STEMS. BLOOMS ARE HIGH CENTERED, NEARLY COVERED AND FULL. BOTH BUDS AND FLOWERS SHOW LITTLE VARIATION IN COLOR WITH CLIMATE CHANGES.

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THE BROOKLYN BOTANIC GARDEN¹

GEORGE S. AVERY, JR., *Director*

We are one of four divisions of the Brooklyn Institute of Arts and Sciences, a hundred and thirty-three-year-old eleemosynary institution engaged largely in the business of popular education, and in the case of Botanic Garden, also in scientific research. Our gardens and arboretum are established on fifty acres of land belonging to the City of New York; our Laboratory and Administration building and range of greenhouses occupy about two and one-half acres of this land. State and City statutes that pertain to the establishment of the Garden date from 1897 to 1912; the Garden was started as a physical entity in 1911. While title to the land and structures is held by the City of New York, all plant collections, scientific equipment, etc., belong to the Trustees of the private corporation. This general relation between the City and the Botanic Garden is characteristic of twelve of the major cultural institutions presently affiliated with the City of New York. It provides City support for care of grounds and structures (i.e., the park and museum aspect of our operations) and for some of our

¹ Reprinted in part, from *The American Institute of Biological Sciences Bulletin*, vol. VII (2): 18-20, April, 1957 by special permission from The American Institute of Biological Sciences and the author, Dr. George S. Avery, Jr.

educational activities, and leaves Trustee funds to be mainly concerned with popular education and scientific research. We feel that this coupling of municipal support with private enterprise and generosity makes for the freedom and flexibility characteristic of private operations, yet gives basic support that is essential, and permits the botanic garden to render a service to the people of the city that could not be offered if either the city government or the private corporation were to operate it alone.

The greenhouse and outdoor plant collection run into the thousands of species, and are as extensive as the space allows. The displays are to some extent grouped taxonomically, but with an eye to landscape appeal. The essence of the social usefulness of the outdoor displays is to be found in the organization as landscape units, i.e., small special gardens. The first few of these were constructed some forty years ago,—the Japanese Garden, Rock Garden, Wild Garden (local floral section”), and the Lily Pools. Others, including the Rose Garden, Herb Garden, Iris Garden and Garden of Fragrance for the Blind, have been developed during the past twenty years. The end is not yet; a hillside “Hanging Garden” is to be constructed this year, and a Garden of Dwarf Plants is scheduled for the not distant future. Bequests and other private generosity of many interested citizens have made largely possible the magnificent displays. They are designed for public enjoyment, and the degree of their success is attested to by the 1,200,000 visitors who came last year to see them. The “many gardens within a garden” is part of the pattern and philosophy of the founder and is as important today as it was in the beginning.

Putting the gardens and collections to work in a more intensive way is the task of our Department of Education. There are three more or less distinct programs. One consists of short courses for adults. There were thirty-three such popular courses last year. All concern plants, and most are slanted toward popular horticulture, but some towards science and others toward art. They meet from three to five times, and have from twelve or fifteen to more than a hundred students, most of them twenty-five to thirty or more. They are chiefly learning-by-doing courses, designed to help build lifetime avocations and add enrichment to living for people who may have missed such opportunities under the formal education system of the colleges and universities. It is continuing education at the level of volunteer interest. More than 1,200 people from every walk of life, professional, housewives, etc., take such courses. Tuitions are kept low, so no one is barred for economic reasons. A second educational program is carried on cooperatively with the public schools, wherein approximately 20,000 children in grades 4 to 8 come to the Garden for classes. Sheer num-

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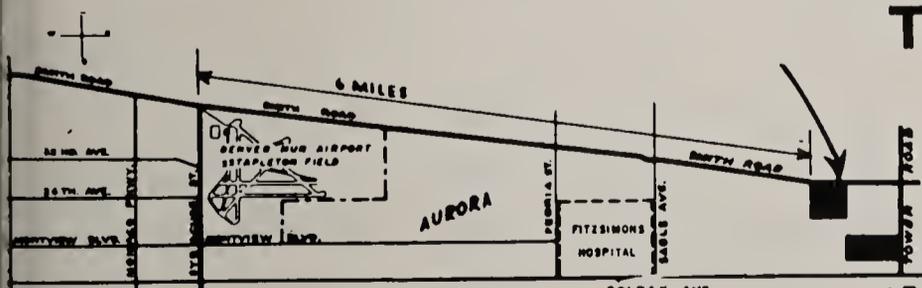
ers make it impossible for all of these to take part in a learning-by-doing program, but it is a real experience with living things, in a sense with the fundamentals of biological science. Too few grade school students ever have this opportunity. To implement this experience to some extent, we send out through the grade schools about one million packets of garden seeds, so that children may "get on their own" with living things during the summer months. They pay two cents per packet.) A third program, for those who qualify, is a summer garden for children here at the Botanic Garden. This is linked with Saturday morning ("leisure time") classes for children that meet throughout the winter and spring months. While some seven hundred different youngsters can participate in the Saturday classes, only three hundred can now be accommodated in the summer children's garden—which is to be doubled in size in the next two years.

These classes are the key to the life of the Botanic Garden. They help make ambassadors-at-large in this great metropolitan community, and while a barely significant fraction of the total population, they (the ambassadors) carry the news of the Garden everywhere, to amateurs like themselves, who in turn come for courses. It is a never-ending chain, based on meaningful popular education and the good will that our teachers and other staff members try to make evident in all their relations with people. We are helping to inspire potential biologists of the future.

Any such setup must have a tangible and closely affiliated group of friends to make it successful. In our case we have "members" of whom there are presently about 1,700. Three-fourths of them live in or around New York, one-fourth in over thirty states. Of these, two hundred constitute a special volunteer women's organization, and the old saying "never underestimate the power of a woman" is abundantly supported by the activities of this group. They make possible some of the Garden's finest accomplishments.

To project the work of the Garden, and ornamental horticulture generally, we publish a quarterly magazine that goes to every state and to thirty-six foreign countries. Its circulation is modest, but it has helped make many friends for horticulture and botanical science, and we hope through this, for biological science generally. It is part of the overall Garden plan to make socially useful the scientific knowledge that man has accumulated about the world's plants and their beauty.

Scientific research is one of the Botanic Garden's charter obligations, and



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like many colleges and universities, it has had periods of strength and periods of weakness in this endeavor. Our current research plans, under the guidance of Paul R. Buckholder, are concerned in an important way with micro-organisms. One of the objectives of the work is to discover microorganism-produced compounds that will be useful in cancer chemotherapy. Toward this end we plan to transfer our scientific research from the city to a building we expect to erect on our recently purchased Field Station property one and one-quarter hours by automobile from the Garden. This will provide more ample laboratory space and simplify the living problems of scientific staff who are raising young families. Library facilities and important urban contacts will be available to them. The Field Station property and laboratory research program will have separate support, and not disturb the established activities of the Garden. Included in it is a plant breeding program that has been going on for the past three or four years. This program will necessitate increasing nursery space, where progeny can be tested over a period of years. Part of the two hundred and twenty-three acre Field Station will be devoted to this, as well as to conservation education and as further interest develops, there is a potentially magnificent setting for Brooklyn-Westchester Botanic Garden of the future.

Lastly, a word about what it takes to finance Botanic Garden operations, for without sound support none of the activities mentioned could be carried on. From the City of New York we receive approximately \$200,000 annually. This goes mainly toward the maintenance of grounds and structures, and to a smaller extent toward the cultural program described. Our endowment amounts to approximately \$3,500,000, and the annual income of \$120,000 is devoted entirely to scientific and educational activities. The current annual gift and membership income from thoughtful and generous friends amounts to another \$50,000; this is chiefly devoted to popular education and projects related thereto. An additional \$50,000 comes and goes in self-liquidating projects of a scientific and educational nature.

It should be mentioned here that a limited number of fellowships are available to those with bachelor's degrees who might want to seek training and experience in the socially-slanted botany and horticulture that make up our educational program. There are also fellowships for scientific work, and collaboration with New York and Columbia Universities makes for possible study for higher degrees.

Not all botanical gardens are doing the same things, nor are they all located in metropolitan centers, but this account of the program of the Brooklyn Botanic Garden will give biologists a general idea of "what they do there."

"How beautiful the Rose, as it unfolds its vernal dyes
And breathes a holy fragrance round, like incense from the skies;
Casts to the breeze the sparkling dews that glitter on its stem,
And wreathes around its blushing brows a crystal diadem."

— from *The Rose* by Robert Caunter.

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SCENE AT 1959 ROSE SHOW

A new kind of wealth, a wealth of beauty, will flow into Denver's First National Bank on June 25. This is the day of the 13th annual show of the Denver Rose Society. Entries of specimen blooms, sprays and arrangements numbering almost a thousand, will transform the bank's impressive lobby into a fairyland of techni-colored splendor.

Roses in the Denver area should be at their peak of perfection. We've had a good winter for roses and, so far, a good spring. Denver Rose Society members are hopeful that, if the weatherman continues to be good to them, their entries will be of true show quality. Many of the newer roses are being entered, many of which you may have never seen except in pictures. This will be an excellent opportunity for visitors to take notes of these roses for possible use in their own gardens. Write down the names, the colors and shapes of the blossoms, the quality of

petals and foliage. For the first time, there is a class for miniature roses. Sensational progress has been made recently in these tiny replicas of regular garden-size roses.

Another first at the Denver Rose Show will be a display of the All America Rose Selections for 1962. These distinctive roses, supplied by the companies producing them, will be highly promoted and eagerly sought next year. See them in all their glory at their premiere in this region. The following are the AARS selections for 1962: Christian Dior and King's Ransom, both hybrid teas; Golden Slippers, floribunda; and John S. Armstrong, grandiflora. (See page 175 for more on these roses.)

In addition to this exclusive feature, the Denver Botanic Gardens will furnish roses for special decorations, foliage plants to be supplied by the bank.

Arrangements, always popular with

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visitors to flower shows, will be especially highlighted. Three sections of arrangements have been planned and in all, roses must predominate. Denver Rose Society members (and that includes men too) are being asked to whet their imaginations and limber up their fingers on the following themes: Colorado Mountain Peaks, Roses Through History, and Elfland.

In the Colorado Mountain Peaks section the arranger selects a mountain peak and creates the design around it. For example, one mountain might connote gold mining, another skiing, another hunting or camping. A class in the Roses Through History section is described in the show schedule as "Spanish missions," "Red or red-blend roses with pine or any evergreen," "In pottery or wooden container." Elfland is the section for miniatures and should really be something to see! Imagine an arrangement made in a thimble standing on a penny — that's "Pennies from Heaven." Or miniature roses in a perfume bottle, the arrangement not to exceed four inches — that's "Just a Whiff."

The great variety of classes in each section assures arrangements in a selection of subjects bounded only by the arranger's imagination. Each ar-

rangement, from the tiniest to the largest, is an artistic conception born of infinite patience and understanding of fingers, a blending of materials and the elements of design into a pure expression of beauty.

Trophies include 18 cups and the Albera Sweepstakes Bowl. They will be displayed in the bank one week prior to the show. In addition to the trophies, certificates will be awarded by the American Rose Society as follows: Gold Medal Certificate for Queen of Show, the best single bloom of hybrid tea or grandiflora; 2nd Gold Medal Certificate for best group of three hybrid teas; Silver Medal Certificate for second best single bloom of hybrid tea or grandiflora; 2nd Silver Medal Certificate for best floribunda; Bronze Medal Certificate for second best group of three hybrid teas and 2nd Bronze Medal Certificate for second best floribunda.

Show Chairman is Henry Conrao, co-chairman, Clyde E. Learned.

Opening the show, the ribbon will be cut at 1:30 P.M., Sunday, June 2. Doors close at 5:30 P.M. The welcome mat is out for all to visit and enjoy the 13th annual Denver Rose Society Show. Make it *your* lucky day.

Roses Spectacular! Attend the Denver Rose Show on June 25. See the 1964 All-America Rose Selections in Living Color.

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55th and Wadsworth BYPASS

Scoops by Scott

MRS. JOHN SCOTT

The architect and sculptor work in space, while the landscape and abstract floral designer create an illusion of space. Floral design is influenced by the home's architectural lines, its simplicity of structure and its broad, unrelieved wall spaces which often consist of glass and tends to project the four walls into the surrounding yard. There is, then, an apparent lack of partitions which project the home into an outdoor living room. Lighting emphasizes shadows and shapes. Colors are earthy and forceful and advanced toward creating "atmosphere". Floral design has advanced, too, and its name is abstract.

Abstractists are of the opinion that recognizable images should be left to photographers, or those with little or no imagination. Imagination and originality are close kin, whether in landscape or floral design. If you're opposed to this abstract "stuff" parading as art, cheer up! We all loathe to change our old well-worn habits, including mental and emotional.

And abstract is an emotional experience. Even the viewer, or public at a flower show, must get out of the old groove, and bestir himself to "getting with" what the designer had in mind. The term is "audience participation". You're participating when you think "I don't like it." It moved you, even if the reaction was unpleasant. Perhaps, if you tried harder to understand the floral designer's personality, plus her originality, plus her design, you'd change your thinking. Abstract is mood in form.

Form, shape, line, color, texture and space relationships are stressed in abstract. Contrasts are ever present. Form may be geometric or not; shape, round vs. square, etc.; line, vertical vs. horizontal, with the oblique and zigzag popular; color, light vs. dark; red vs. green, etc.; texture, smooth vs. rough, etc.; spaces are not meaningless voids but important areas of design. All elements are placed to give direction to design. Abstract is going places, not sitting pretty.

Nature, as such, is of minor importance. Familiar plant materials (if you can't come by some exotics) are used in unfamiliar ways, with a little going along way. The container has come into its own and may be more important design-wise than the plant materials. The focal point may be missing. Mechanisms may be a part of the design and show and the colors are apt to clash. There

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is segregation everywhere. If contemporary floral designs were a dream, abstract is a nightmare, because the one was passive, the other is active.

Abstract does not need to always be angular. For instance, "love" might be portrayed with an upright spiral, not a spear, even if Cupid did have a dagger or two. But "Love" certainly wouldn't be a mass design of sweetheart roses with an alabaster figurine of a nude nymph. This latter belongs with the "periodic pieces" not the space projects. With a little revision of thinking, abstract is not only "emotionally stimulating, but intellectually satisfying" to quote Emma L. Cyphers, author of diverse digests on design.

Another authority, Mrs. W. H. Barton, tells how abstract is judged. *design*, which gives form to feeling, is 25 points; *interpretation* (recall "love which flowers in June") another 25 points; *distinction*, that handling of material thought of in connection with originality, 25 points again, and of course, *originality*, which has to do with the concept or "thinking out" of the arrangement in the first place. Notice that each of these, design, interpretation, distinction and originality rate 25 points equally.

Whatever our idea of abstract may be, it usually doesn't include the mobile and stabile, both products of the space age, stimulating movement in the case of the stabile, and often actual action with the mobile when a little air's in motion. Mrs. Barton differentiates between them. "The stabile arises into space and gives the illusion that it is as free as the mobile." The stabile is anchored to a base, while the mobile hangs in space. The mobile has made much progress since Alexander Calder conceived it in the 1930's. Both are naturals for the abstract designer.

The mobile is seldom seen in shows, due probably to staging limitations. But, it is very useful in the home where the "anyplace" decoration is suitable and space is a premium. Placements might include: a window recess, an open compartment, a space made by removable shelves, or a breakfast nook.

Mrs. Barton conforms to the abstract judging, already given, with a minor change in point placement. Both the mobile and stabile are allotted 30 points for design and relationship of component parts, with distinction and originality rating 20 points each.

Abstract can be fascinating. Why not try these timely trends?

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NOW IS THE TIME

TO PRUNE

EARLY-FLOWERING

SHRUBS

MORAS L. SHUBERT



Many people ask the horticulturists when it is time to prune this or that tree or shrub. For most plants, regardless of species, the answer is "prune when your tools are sharp, and when you have the urge". But if you want to maintain your lilacs, forsythias, spireas, and any other species that blooms early in the season so that you will get a maximum amount of flowering wood each year, prune them as soon as the flowers are finished. This will give the bush a chance to set a good crop of flower buds for the next year. Did you know that every lilac cluster you saw bloom this spring was already formed last fall and packaged in the bud all winter?

How to prune? There are only a few steps to keep constantly in mind when pruning a shrub, so learn them and let them guide you when you take pruning shears in hand and go to work.

Remove all dead and broken branches first so that you can see better what remains to be done.

If it is an old bush, take out a few of the oldest stems completely and let newer ones take their place. This keeps the "average age" of the bush the same year after year, and it will always be productive.

Hide all pruning cuts, so far as

possible, by cutting back the too-long stems to lateral branches. Remember that a good job of pruning is one that does not show!

4. Do not over-prune, but keep backing off and checking your progress. Many people get carried away by their enjoyment of this pleasant activity and by the sound of the pruning shears. Just keep in mind that there is still the job of getting rid of the material you remove, so do not make too big a pile.

After the pruning is finished, and it is usually *not* necessary to paint pruning wounds on shrubs, there is still one more thing that you may need to do. Did you discover aphids, or other insects, while working? If it was a snowball, you surely must have seen some of those "plant lice" that thrive on the tender new stems. Do not delay spraying with a suitable insecticide, as these pests will deform the new growth.

Another item that may be worth mentioning now is to suggest that mineral fertilizer, rich in phosphorus, be worked in around the shrubs. A large lilac bush can use a pound or two of superphosphate lightly forked into the soil then watered very thoroughly. A so-called "balanced" fertilizer can also be used the same way.

THE W. W. WILMORE NURSERIES — COLORADO'S OLDEST



W. W. WILMORE
1861 - 1950

Its Past and Present



SCOTT WILMORE
1895 -

"One of the most interesting places to visit around Denver is the flower gardens of W. W. Wilmore, in Wheat Ridge. By those who have been out there it is claimed to be the finest sight of the kind that they have ever witnessed in their lives. . . . A few days ago a reporter for the Times went out to Mr. Wilmore's gardens to investigate, and at once came to the conclusion that the statement was in no wise overdrawn when it is said that it is the finest collection of Dahlias in the United States. . . . The gardens are situated about two miles west of Elitch's garden."

Six years before the above article appeared in the Denver Times (Oct. 1892) W. W. Wilmore purchased 10 acres of ground at the corner of Wadsworth Avenue and Prospect (now called West 38th Avenue) and founded Colorado's oldest nursery. Mr. Wilmore started growing dahlias as a hobby in 1883 in connection with his other business, fruit growing. He was so successful as an amateur grower that he "turned professional" and sold his first commercial crop in 1886. This latter date is the date he always used whenever he referred to the establishment of the W. W. Wilmore Nurseries.

Since W. W. Wilmore's first and great love was dahlias, the firm operated almost exclusively as a dahlia nursery and farm from its founding until shortly after World War I. During this time W. W. Wilmore achieved national recognition as one of the nation's outstanding dahlia hybridizers. Over 400 new varieties were originated at his Wheat Ridge nursery.

After World War I, two of his sons (Scott and Charles) who had previously joined him in the nursery venture, helped him expand his nursery list. W. W. Wilmore Nurseries soon became well known not only for its dahlias but also for its complete line of landscaping plant material. The business continued to expand under the leadership of Scott and Charles who operated the nursery as a partnership for a number of years. This partnership was dissolved in 1932, and from that date the W. W. Wilmore Nurseries has been owned and operated by Scott Wilmore and his wife, Ruth. Charles Wilmore then established the *Green Bowers Nursery* located at South Colorado Blvd. and East Exposition Avenue.

Without losing his love for dahlias and other "bulbs," Scott Wilmore was attracted to the challenge of complete landscaping. He continued to experiment with new varieties of evergreens, trees, shrubs, and roses until today his nursery offers the most extensive list of plant material available in the Rocky Mountain

gion. This plant research is a continuous process with 10 or 20 new plants on trial" at all times in Ruth and Scott's yard.

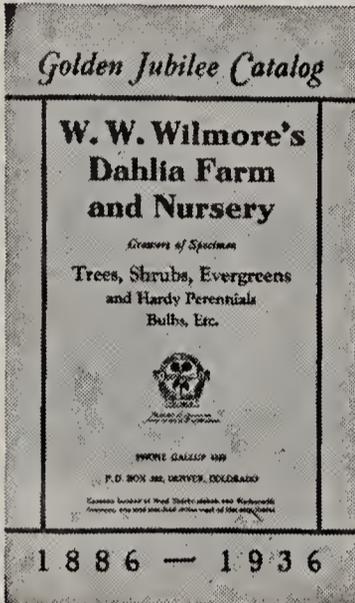
One of the main areas of experimentation being conducted at the present time by Ruth and Scott concerns broadleaved evergreens. More than 80 varieties of broadleaves have been tested by them over the past 7 years. They were instrumental in helping to introduce *Pyracantha*, *Mahonia*, and several members of the *Euonymus* family into Colorado. The pioneering in this field is one of the outstanding contributions to Colorado horticulture made by this successful husband and wife team.



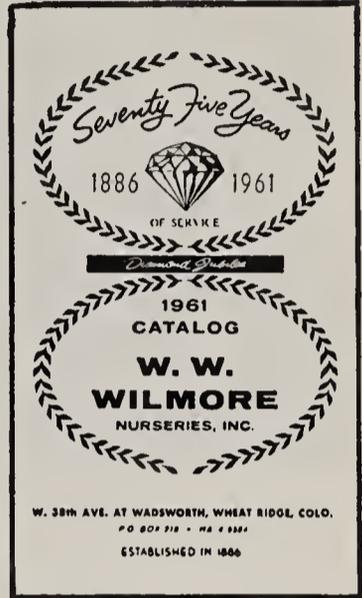
1893



1900



1936



1961

As Denver and its suburbs have grown, so has *W. W. Wilmore Nurseries*. From its beginning as a one-man operation 75 years ago, it has grown in size until it now has a spring season payroll of 50 employees plus 15 landscape designers. All of this has been made possible by its loyal customer list of over 1000 Denver area families.

Through the years, Ruth and Scott Wilmore have tried to do more than just build a large respected nursery business. They probably are equally as well known for their many contributions of both money and time to any organization or group interested in promoting horticulture in the Rocky Mountain area. They have developed numerous free educational services for their customers, and have been equally generous with their experience and knowledge to all Coloradans, old and new.

The Green Thumb congratulates and salutes *W. W. Wilmore Nurseries* for 75 years of service to the Denver area.

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PTELEA TRIFOLIATA

HOPTREE

The Hoptree or Waferash, *Ptelea trifoliata*, is an interesting large shrub with a distinctive character all its own. In general, it seldom attains a height over 8 feet tall in this area. It is rather loose in habit and perfectly hardy. Its leaves are distinctively three parted and a dark, glossy green. The clusters of round hop-like fruits are a light green which gives a pleasant contrast with the leaves, almost like a head of flowers. Another distinctive character of this shrub is the odor of the leaves when crushed. To some the odor is hop-like, while to others it is more of a mild skunky odor. In any case the odor is only apparent when the leaves are bruised so one can enjoy it or not as they please. The species, *P. trifoliata* that is most generally in cultivation, is native in places throughout the eastern United States. If collected in the southern part of its range it may not be completely hardy when planted here, but most nurseries have specimens from more northern locations. There is a native *Ptelea* in Colorado, *Ptelea baldwinii*, growing quite commonly in the vicinity of the upper



FONTANESIA FORTUNEI

Arkansas River. This has never been introduced to the ornamental trade to any extent, but should be, because it has a much lighter character than the eastern species.

Specimens of this interesting shrub may be found occasionally in some of our older parks, planted by some early plant enthusiast, who didn't know that it wasn't supposed to grow here.

FONTANESIA

Fontanesia fortunei is a comparatively unknown shrub here yet it has qualities which should make it quite useful in this area. As far as we know it has not acquired any common name. It is a rather tall, slim shrub somewhat like a bush honeysuckle. Its leaves are willow-like, which, with its upright habit, give it an almost bamboo-like appearance. This could be very useful with the recent interest in Japanese gardens.

The plant is perfectly hardy in the Denver area and grows rather rapidly. The flowers and fruits are inconspicuous but are not necessary to make this a valuable shrub for certain locations.

The 1961 Denver Botanic Gardens Bulb Display

A carpet of color best describes the continuous display of crocus, tulips, narcissus and hyacinths that have been blooming in the bulb garden of the Denver Botanic Gardens at 909 York Street. The first "splash" of color, of course, were the crocus ranging in color from brilliant yellow, pure white to the delicately variegated blue and white. As early as March 20 the first tulip variety (Water Lily Tulip) was in bloom despite frequent snows and cold nights. No sooner had the Water Lily Tulips dropped their petals than the early Red Emperor and the very showy and short stemmed Peacock Tulips displayed their color. The brilliant red of the Red Emperor seemed to dominate the scene for a few days but was soon lost in the splendor of other early single tulips such as the bright red Princeps followed by the vivid yellow of Ballona. The yellow Ballona was even more intensified by the pale-pink background of the stone wall on the east end of the bed. Adding to the yellow color scheme were the numerous varieties of narcissus providing a multitude of yellow-to-cream hues.

Soon our attention was drawn away from the yellow of Ballona and of the narcissus with the blooming of the Darwin hybrids such as the bright reds of General Eisenhower, Dover and Oxford. At the same time the early double tulips came into full bloom. Attracting considerable attention were the double, variegated rose and white Gerbrand Kieft bordered by the creamy white double Mount Tacoma planted in a triangle near the southeast entrance to the Gardens.



EARLY, YELLOW, SINGLE TULIP — BALLONA

Other doubles included varieties such as the pure white Schoonord, the cerise-colored Electra, the pure yellow Mr. Van der Hoef and the red-orange of Orange Nassau. To break the monotony of the solid-colored tulips there were several variegated early single varieties including the yellow-orange and red, Prince



EARLY DOUBLE TULIP — GERBRAND KIEFT

Carnival, the red and yellow-striped Keizerskroon, the orange and red-blended Sunburst and the pink and white "candy stripe" of Ibis.

To continue the colorful display were the somewhat later Lily-Flowered Tulips ranging in color from deep red, lavender and pink to yellow and pure white.

Several weeks after the early single varieties had reached their full glory the long-stemmed Darwin and Cottage Tulips added their multitude of color along with the fancy Rembrandt, Fringed and Parrot Tulip varieties.

I could go on and on naming the brilliant-colored tulips that were on display throughout the two and one-half month period of continuous color but it must be seen to be appreciated.

If you missed the bulb display this year, make a special note to yourself to see it next year, but don't wait until then to visit us. Soon the petunia display will be in color, and, of course, so will our roses.

Outdoor Livingroom? Take the Terrace and Garden Tour June 28.

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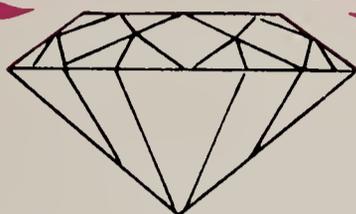
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ULY,

1961

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JULY
Vol. 18
No. 6

The Green Thumb

To conduct research on plants, both native and exotic, in varied plant zones of our region, to evaluate their economic, medicinal and horticultural potentials.

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DENVER 6, COLORADO

Members



Calendar Of Events

Every Saturday Morning—9:10 a.m.
KLZ Radio. Various gardening
Topics by Herbert Gundell, Denver
County Agent.

Every Saturday Afternoon—4:30 p.m.
KLZ-TV Channel 7, Gardening
Program by Herbert Gundell.

Third Sunday every month—Colorado
Cactophiles at members' homes.
Call WE 4-1506.

At Botanic Gardens House 909 York

July 3—9:30 a.m. Junior Committee

July 5—7:30 p.m. Botany Club

July 6—7:45 p.m. Orchid Society

July 10—10:00 a.m. Judges' Council

July 11—10:00 a.m. Herbarium Study
Group

4:00 p.m.—Citizens Park & Shade
Tree Committee

7:30 p.m.—Evergreen Garden Club

8:00 p.m.—Tree Class, Dr. A. C. Hildreth.

July 12—7:30 p.m.—Landscape
Contractors

July 13—2:00 p.m. Editorial Com-
mittee

July 17—4:30 p.m. Botanic Gardens
Board

July 18—8:00 p.m. Tree Class. Dr.
A. C. Hildreth

July 19—9:30 a.m. "Fun with Flow-
ers" Workshop

July 26—12:30 p.m. Sunbonnet Ga-
den Club, Luncheon Meeting.

7:30 p.m. Landscape Contractors

August 1—8:00 p.m. Tree Class. L.
Moras Shubert

August 2—7:30 p.m. Botany Club

August 3—7:45 p.m. Orchid Soci-

August 7—9:30 a.m. Botanic Garde-
Jr. Committee

August 9—7:30 p.m. Landscape Co-
tractors

August 11—10:30 a.m. Park Hl
Garden Club. Tour, Luncheon. L.
Hildreth

August 12—Afternoon. Unesco P-
nic. Dr. Hildreth

August 14—10:00 a.m. Judges' Cou-
cil

August 15 — 8:00 p.m. Tree Cla
Dr. Moras Shubert.

August 16 — 9:30 a.m. "Fun wi
Flowers" Workshop

August 23 — 7:30 p.m. Landscap
Contractors

September 4—9:30 a.m. Botanic Ga-
dens Junior Committee

September 5—8:00 p.m. Tree Cla
Dr. A. C. Hildreth

September 6—7:30 p.m. Botany Clu

September 7—7:45 p.m. Orchid S-
ciety.

September 8 — 9:30 a.m. Southe
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NOTES AND NOTICES

AUGUST AND SEPTEMBER ISSUES TO BE COMBINED — The August and September issues of *The Green Thumb* will be combined into one issue which will reach the members in late August or early September.

TULIP TREES IN DENVER—In response to an article in the June, 1961 issue of *The Green Thumb*, "Exotics of Colorado—The Tulip Tree" by Dr. Helen M. Zeiner, Mrs. May McCallister of 2511 Irving Street and Mrs. J. G. McMann of 2649 So. Wadsworth have reported that they have tulip trees growing on their property. Mrs. McCallister has two trees which were planted in 1931 and usually bloom each June. Mrs. McMann's tree is only about 12 years old and has not bloomed yet.

BOOKS AND BOOKLETS FOR SALE — The following books and booklets may be purchased in the office at Botanic Gardens House, 909 York Street:

Around the Seasons by S. R. DeBoer.....	\$1.00
Meet the Natives by M. Walter Pesman.....	spiral binding 3.60
	regular binding 3.00
Mountain Wild Flowers, a museum pictorial.....	1.25
Colorado Evergreens by Robert E. More.....	2.50
How to Grow Good Gardens in the Sunshine States by George Kelly....	
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ARTICLES OF LASTING INTEREST — In past issues of *The Green Thumb* are several articles of interest to today's gardener. Copies may be obtained from Mrs. Helen M. Vincent at Botanic Gardens House. Among such articles are: Lilacs for Colorado by Milton J. Keegan. *The Green Thumb*, vol. 1, number 7, December, 1944. Beautifully illustrated. Price—10 cents. Flowers and Gardens of the Central City Region. A well illustrated issue by several authors. *The Green Thumb*, vol. 3, number 4, July-August, 1946. Price—50 cents. Hawthorns by M. Walter Pesman. *The Green Thumb*, vol. 7, number 5. May, 1950. A descriptive article and completely illustrated. Price—10 cents.

DENVER BOTANIC GARDENS NOTE PAPER AVAILABLE—Send your personal notes to your friends on our new note paper with Botanic Gardens House etched on the front. Available from Mrs. Vincent, Botanic Gardens House, at \$1.00 per box.

QUESTIONS AND ANSWERS—To date we have received only one question through the mail for the "Questions and Answers" column. The single question came from A. H. MacAndrews of Syracuse, New York and was answered by return mail. This practice will be followed until we have a sufficient number of questions to print a column in *The Green Thumb*. Certainly, many of you readers have gardening questions that you would like to have answered and would be of interest to other readers. Send your questions *now* to Mrs. J. V. "Pete" Petersen, 1550 Ridge Rd., Littleton, Colorado. Questions considered of general interest to *The Green Thumb* readers will be answered in a future issue.

FIELD TRIP TO MT. GOLIATH — A field trip to Denver Botanic Gardens, Mt. Goliath Alpine Garden will be made on August 11. Cost — \$2.00 per person to cover bus fare. Send your check for reservations to Mrs. Harlan Cluph, 3888 So. Grant St., Englewood. Deadline August 3. Bring a picnic lunch.

FIESTA — PLANT AUCTION

A GREAT SUCCESS

The Fiesta and Plant Auction held May 20 and 21 was a great success despite intermittent rains and cool temperatures. Net returns from the two-day affair totalled \$4232.62. We express our sincere appreciation for the efforts of all those named below for their help in making this event a success.

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Denver Rose Society, Forest Hill Garden Club, Morning Belles Garden Club and Rose Bowl Garden Club.

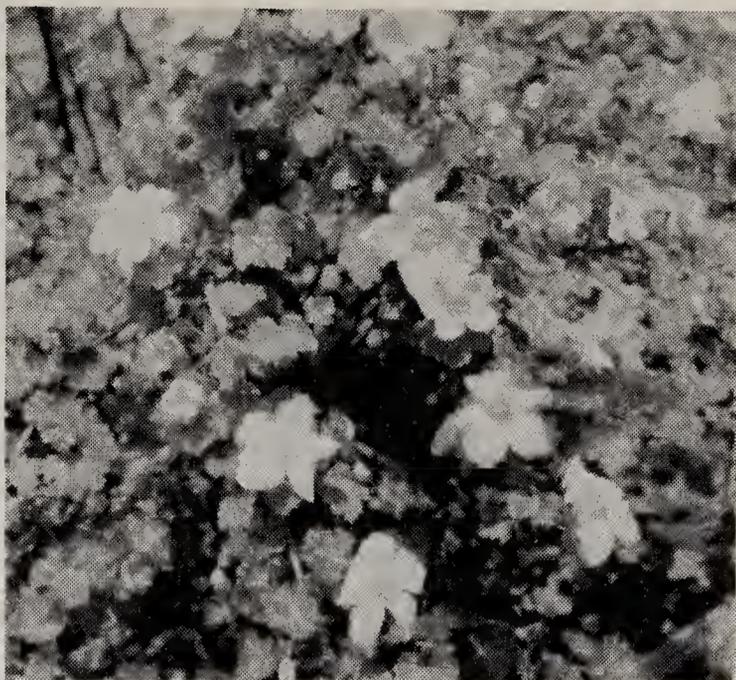
GARDENING

WITH

COLORADO

WILDINGS V

RUTH ASHTON NELSON



Boulder Raspberry Blooming in the Author's Garden.

The Medium-sized and Small Shrubs

This group includes numerous species of Rocky Mountain shrubs which are suitable for a variety of uses and locations. Some are easily grown under conventional garden conditions, others are best used where naturalistic, dry garden effects are desired. Only a few can be described here.

Of the first group, the showiest and most generally useful is the Boulder Raspberry, or Thimbleberry, *Rubus deliciosus*, a member of the rose family. Under garden conditions this grows into a symmetrical shrub, 4 to 6 feet tall. In mid May its thornless, arching branches become festooned with pure white, rose-like, single flowers, 1½ to 2 inches in diameter. In spite of its name the berries are insipid but relished by the birds. Seedlings are always appearing in my garden. I transplant these into a nursery bed where they grow rapidly and are ready to bloom when two or three years old. It retains its attractiveness better than some other natives under regular garden watering. It should have full sun.

Apache Plume, *Fallugia paradoxa*, another member of the Rose family and a very useful and attractive shrub

in the garden. Its white flowers are somewhat similar to those of the Boulder Raspberry but smaller, about 1 inch in diameter. They stand away from the finely cut foliage on slender, inch-long stalks. It puts on a burst of bloom in early June and then continues to show a few flowers all through the summer. It has a striking appearance in fruit because each bloom ripens into a tuft of rose-tinged, plume-tailed achenes similar to Clematis fruits. The leaves of Apache Plume are persistent and almost evergreen. Its bark is white. It requires sun and a well drained soil kept moderately dry. It is easily propagated by layering.

Shrubby Cinquefoil, *Potentilla fruticosa*, is another member of this family which thrives and seeds itself freely in a sunny garden although it does not quite attain the same beauty which it has under the natural conditions at and above timberline. It is usually between 1 and 2 feet tall and this small size makes it particularly valuable. In early summer it will be covered with half-inch broad, bright yellow flowers. A few blooms occur scatteringly throughout the summer. In August the foliage has a tendency to look rusty from the effects of red

spider but it should be possible to control this by spraying.

The Little-leaf Mock Orange, *Philadelphus microphyllus*, is pleasing for its dainty, light green foliage, brown and white striped bark, and numerous, four-petaled white flowers. It is also valuable because it is fine textured and is easily kept within bounds where a small shrub, not over 2 to 3 feet tall, is desired.

Our native Sumac, *Rhus glabra*, is easily grown and has some merit. It suckers but it will provide lush green foliage in summer, brilliant rose-red autumn color and pyramidal clusters of dark red, velvety berries in winter.

For dry, gravelly situations as on mesas and foothills where many of the new homes are being built, the shrubs indigenous to these locations can be depended on to provide a naturalistic and appropriate setting. In general they are difficult to transplant successfully because of the dry, rocky soil in which they live but now that they can be obtained from nurseries in the Denver area, there is no reason for not using them. When once established they will give years of beauty with a minimum of maintenance cost. All of them are made more attractive by an occasional watering. Two or three good soakings during an ordinary Rocky Mountain summer should be enough. Too much water will cause them to become unsightly. One of the most drought resistant is our common Mountain Mahogany, *Cercocarpus montanus*. This has a small, dark green leaf and becomes covered with tiny flowers which de-

velop seeds having feathery, curled tails. It is an erect shrub, 3 to 8 feet tall.

For a bright green effect in dry situations there is nothing as satisfactory as the Three-leaf Sumac, *Rhus trilobata*. This is also known as Squawbush because the Indians used it in basketry,—as Skunkbush because the foliage has a strong odor, which to me, is not at all like that of a skunk,—and Lemonade-berry because the red fruits are acid and can be used to flavor an acceptably refreshing drink. The height of this bush varies from 1 to 4 feet and may be partly controlled by the amount of water given it. Its shiny, compound leaves turn beautiful shades of orange and scarlet in autumn.

Several of the gray-leaved shrubs such as the Sagebrushes, *Artemisia tridentata* and *A. filifolia*, and Rabbitbrushes, species of *Chrysothamnus*, are very handsome when grown as ornamentals. They must have full sun and little water. The Rabbitbrush becomes covered with masses of golden yellow blossoms in late summer.

For erosion control on banks and in washes there are some small natives which are very effective such as Wild Roses, *Rosa*, spp.; Sandcherry, *Prunus besseyi*; Wolfberry or Buckbrush, *Symphoricarpos occidentalis*; and Snowberry, *S. alba*. The last two are ornamental and satisfactory where they receive a good supply of underground moisture.

For the question of appropriate and low cost-of-maintenance gardening in the Rocky Mountain region, native shrubs are one answer.

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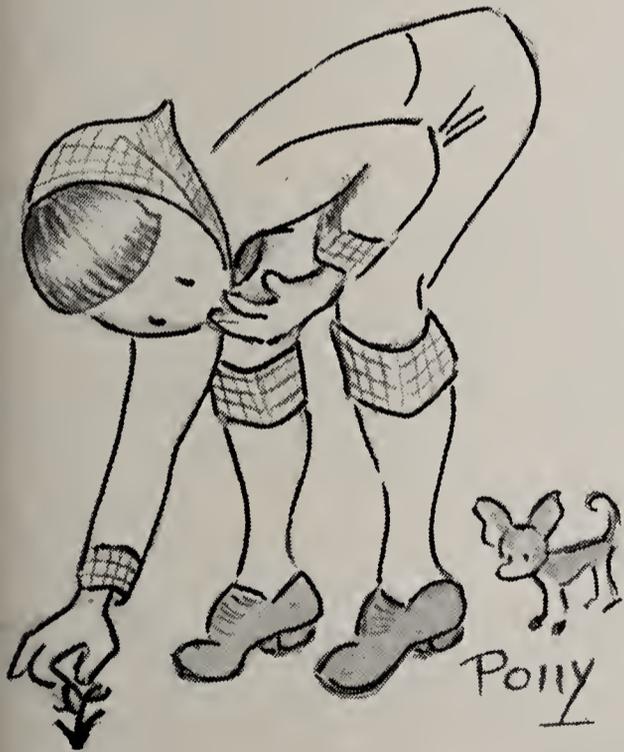
Drop Card for Our Current Catalog



Dear Pete,

I saw a beautiful big scarlet lily-like flower under the pines in the foothills last July. What was the flower? Someone told me it would die if I picked it. Is it true that picking them will kill them?

Ivan Offelich



Dear Scratch,

How lucky you were! If the blossom had purplish-black polka-dots, Wood Lily, *Lilium umbellatum*, was your treasure.

Two authorities I questioned suggested foliage is necessary to mature new bulbs, and, of course, picking the blossom would eliminate formation of seed. Harold and Rhoda Roberts picture Wood Lily in full color in their book "Colorado Wild Flowers" and warn that "picking the flower usually kills the bulb." Perhaps other local botanists will report their findings.

Mrs. William Crisp recalls that as early as 1925 the Colorado Nature Club listed wood lily among the six vanishing wild flowers in this area.

Dear Thinkin' Gal?

By the time we move to our home at 8500 feet elevation each summer the iris, which grow so satisfactorily there, have begun to fade. Can you

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name some late iris to extend this colorful extravaganza?

Extenda Bloom

Dear Extenda,

Since iris shows are limited to one spectacular a season a planting of late-late iris is definitely your solution.

Everett Long, iris connoisseur, recommends "Extravaganza," cream standards with purple falls; "Love Story," shell pink; and "Rose of Picardy," pink blend.

Bertha Durfee, keeper of the blooming records at Botanic Gardens, has found these to be late-performers: "Aspen Glow," orange; "Rose Amethyst"; "Shiloh," dark purple; "Cutie Pie," fringed white to orchid to dark orchid; "Swan Ballet," white; "June Meredith," frilly pink; and "Night and Day," very dark. She cautions that our unusually cold spring produced some unreliability in plant performance.



WESTWARD HOE

Dear Pete,

We're forming a garden club and find it hard to avoid duplication of name. Any ideas?

Uname It

Dear Nameless,

With twelve garden clubs in the Littleton area alone I can see that names are difficult to find. Garden calendars list the club represented by the arranger. This might seed a thought.

The monthly publication of the Colorado Federation of Garden Clubs lists member organizations. Reference to this list will eliminate duplicates federated.

Perhaps an idea will evolve from one of these: Metro-Mites, Creative Gardeners, Flower Friends, Let's Grow, and Westward Hoe.

Name it and *you* can have it!

Our Thanks

To our many friends who helped to make our Silver Wedding Anniversary such a memorable occasion, we wish to extend our thanks.

Our guest book showed that over 150 guests called. We enjoyed every moment of it.

The Denver Botanic Rose Garden Fund will benefit from the proceeds of the silver offering.

A beautiful double wedding ring arrangement featuring roses made and presented by Mrs. Ray Turnure was indeed the conversation of the day.

We can't begin to express our thanks and gratitude.

VELLA & HENRY CONRAD



"View of the Insulated Table Lands at the Foot of the Rocky Mountains."

From Edwin James: *Account of an Expedition
from Pittsburgh to the Rocky Mountains.*
Phil., 1922-23, vol. 3, Atlas

Photo courtesy of
Denver Public Library.

Samuel Seymour, the first artist known to have seen the Colorado Rockies, painted this picture of the lava-topped buttes near the present-day town of Larkspur. Seymour was hired as a landscape artist to accompany Major Long's 1820 expedition. The expedition consisted of 22 men, 15 horses or mules and two dogs. Leading the march was Captain J. R. Bell, West Point graduate, accompanied by Joseph Bijeau, the French guide. Behind them, in two sections, stretched the rest of the company. The scientists Dr. Edwin James and Mr. Thomas Say, assisted by the twenty-year-old Titian Peale rode where they pleased. Mr. Say, later to become famous as an insect collector, was sick the whole summer but never complained. Perhaps the last horseman in the picture, heath the beaver hat, is a self-portrait of the artist, an Englishman.

BOTANIZING WITH EDWIN JAMES

LOUISA WARD ARPS

In the summer of 1820 Dr. Edwin James, a twenty-three-year old physician-botanist, rode along the base of the Front Range of the Rocky Mountains from Longs Peak on the north to Pikes Peak on the south. The young man's sharp black eyes missed few botanical specimens along the route. He must have discounted a thousand times, and wandered miles afoot around nooning places and night camps, his tall frame bent double to pick up plants. These he carried west with him to Dr. John Torrey who classified them by the "natural system", a historic milestone of American botany.

Today, driving south from Denver on Highway 87, we can see much of Dr. James' route and examples of some of the plants he collected. To do this we will park off the highway at six points between Denver and the U. S. Air Force Academy. We start our mileage at 0.0 where Highway 87 goes under Colorado Boulevard.

STOP #1. 4.7 miles. (Park east of Paradise Valley Club, north of Belleview avenue overpass). We are now looking at the Front Range of the Colorado Rockies. The highest mountain to the north is Longs Peak (14,256 ft.), the glory of Rocky Mountain National Park. Major Long, after whom it was named, was the leader of the expedition to which Dr. James was attached. They first sighted Longs Peak on June 30, 1820 but did not try to near it.

West of us lies Mt. Evans, a great mass of mountains named for Governor John Evans, founder of Northwestern University, Evanston, Illinois, and of the University of Denver. The highest automobile road in the U. S. reaches almost to the top of Mt. Evans. On its side the Denver Botanic Gardens maintains the Mt. Goliath area.

North of Mt. Evans the next range of high mountains is the James Peak Range. This was named for Dr. Edwin James forty years after his journey to Colorado by another physician-botanist, Dr. C. C. Parry. He spent summers after summer in the early 1860's wandering on or near the James Peak range. His botanical enthusiasm was unbounded. He wrote postcards to every botanist of his era, sending botanical specimens to Dr. John Torrey and Dr. Asa Gray. For these two fathers of American botany Dr. Parry named the two highest peaks in the range—Grays Peak (14,270) and Torreys Peak (14,267). These are hidden from us here by Mt. Evans, but can be seen from the Boulder road north of Denver. Thanks to Dr. Parry other Front Range mountains are named after early men of the biological sciences, such as Mt. Audubon and Mt. Engelmann. Engelmann, a St. Louis botanist, is honored in the Engelmann spruce, *Picea engelmannii*.

"The good Dr. Parry", mountain-namer, had a peak named for him, too, southwest of James Peak. The next time we meet his name on a plant, as in *Primula parryi*, let us think of this Belleview where we saw many of the mountains he loved and named.

But Parry came late to Colorado. It was Dr. Edwin James who had the fun of being our first trained botanist. If we want to see one exact spot where he botanized, use Pikes Peak at 12 o'clock and look toward 1:45 o'clock. Here the South Platte River leaves the foothills, and here, on July 6, 1820, Dr. James picked up the type specimen of the Rocky Mountain Maple, *Acer glabrum* Torr. and the delicate-flowered Cranesbill, *Geranium caespitosum* James. Returning to camp in the evening, he lost his little tin box; the next morning he kept the whole outfit waiting until seven o'clock while he went back to find it.

As we proceed we see, right, the Ramo-Wooldridge plant, makers of electronic instruments, and beyond, sprawling up a foothill, the Martin Plant, makers of Titan missiles. Within a mile we cross Arapahoe Road, named for Indians who hunted Buffaloes here. (From missiles to Indians in a mile!) Later, left, are wheat-storage bins. Un-irrigated lands of the high plains produce

We are continually experimenting with plants suitable for ROCK GARDENS. We have a large selection of the old-timers, new, unusual and native plants. Many are in pots ready to set out at any time. We also have mature plants in our own rock garden to show you what they may eventually look like.

COTTONWOOD GARDEN SHOP

George and Sue Kelly

4849 So. Santa Fe Drive, Littleton

PY 4-0430

much wheat if the rains come; in drought years the fields blow away. Right, field of *Yucca glauca*, variously known as Adam's Needle, Spanish Bayonet or Soapweed, fine for washing hair.

STOP #2. 7.7 miles. (Pass the green sign that reads Castle Rock II, Colorado Springs 49, and park at the yellow curve sign). Cherry Creek Valley lies to the east, now with farms watered by deep wells. On the skyline above the valley is a thick forest of Ponderosa pine. This growth extends south about fifty miles. Now called the Black Forest, the goldrushers of 1859 knew it as the Pineries where they cut lumber for Denver cabins. The roads that descend from the Pineries to the valley are the remnants of great swaths cut by the wagon wheels of the emigrants. These were the Smoky Hill routes from the Missouri River towns.

As we proceed, let us look at Happy Canyon, the gulch we immediately cross. Here are Broadleaf Cottonwoods, *Populus sargentii*, loved by Westerners. On the plains they alone gave wood, shade and shelter from quick storms, hay ever and branches from which to hang horse thieves. In higher country, Dr. James observed the Narrowleaf Cottonwood, *Populus augustifolia*, that looks more like a cross between a willow and a cottonwood. Happy Canyon is a happy hunting ground for housewives who make jelly of wild plums, *Prunus americana*, and we can see Cliff Jamesia, *Jamesia americana*. We are soon in the scrub oak country. This growth covers many hills to our south, in places impenetrably thick. A common kind is named for John Gunnison, *Quercus gunnisoni* Rydb, an explorer, less lucky than Dr. James, who was killed by Indians in Utah in 1853.

STOP #3. 10.3 miles. (Park beyond the Castle Rock city limit sign just before the bridge that crosses Plum Creek to our right). We are now in the valley of East Plum Creek, called Defile Creek by Dr. James. Castle Rock is on our left, with the town of the same name below it. The rock has had other names. Geologists call it Castle Rock conglomerate (or pudding stone) topping Dawson Arkose. When Fremont passed here July 9, 1843, his hungry men, homesick for their mothers' cooking, called it Poundcake Rock. About here Fremont noted Blue Flax, *Linum lewisi* and Scarlet Gilia, *Gilia aggregata*.

To our right is a butte (pronounced beaut) topped with rhyolite. On the top of this butte was a quarry for lava rock, the pink and gray stone used in many Denver buildings, notably Trinity Methodist Church at 19th and Broadway.

From here our road follows East Plum Creek (Dr. James followed West Plum Creek) to the top of the Palmer Lake Divide. This Divide is a high plain that stretches about forty miles east at right angles to the Front Range. It collects thunderheads in the summer and blizzards in the winter often closing Highway 87.

STOP #4. 10.3 miles. (Park opposite a white cairn on left of road.)

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Straight ahead is Larkspur Butte, named for the flower, *Delphinium nelso*, that makes the hills blue and cattlemen bluer, since Larkspur is poisonous to cattle. Look at the Monkey Face in the rocks of Raspberry Butte (about 10 o'clock) before we drive on.

We pass a picnic spot beneath Ponderosa pines, then we come to a row of billboards that show that scenic Colorado has not joined the national crusade to keep billboards 600 feet from highways.

STOP #5. 4.3 miles. (Park before the entrance to Greenland Ranch). The ranch, named by Colorado Springs' most literary lady, Helen Hunt Jackson, dates back to September, 1875. Its first owner was Fred J. Salomon, Denver pioneer who made his fortune, not by prospecting, but by feeding prospectors. From this ranch he shipped carloads of potatoes, as did many dry land farms on the Divide in the 1870's. In 1895 a blight ended the potato crop.

Please note Pikes Peak (14,110 ft.) straight ahead. In a few miles it will disappear behind its foothills, to reappear at Colorado Springs where it rises steeply 8,000 feet. Pikes Peak, like all the Front Range, is made of Precambrian granite, meaning it is almost the oldest rock known. When it pushed up from the depths of the earth it pushed sediments lying on the bottom of an ocean ahead of it. Remnants of these sediments are the red sandstones of the Boulder Flatirons, Red Rocks west of Denver, the red and white "monuments" and the inspiring Garden of the Gods.

The first American to leave any record of sighting Pikes Peak was Zebulon Pike who failed to climb it in late November, 1806. He topped a much lower mountain, south of Cheyenne Mountain. On July 14, 1820, Dr. Edwin James stood on the top of Pikes Peak. He was the first man on record to stand above 14,000 feet in the U.S.A. Dr. James could and did appreciate the flowers above the timberline, especially their intense colors. He wondered if the blue sky had lent its color to the blue flowers. His collections included Alpine Chiming Bell, *Mertensia alpina*, sweet-smelling Rock Jasmine, *Androsace carinata*, and Fairy Primrose, *Primula augustifolia*. The twin-flowered snowlover that turns brown when picked was named *Chionophila jamesii*.

The first woman to climb Pikes Peak was Mrs. Holmes, in 1858. Since then Pikes has had, successively, a trail, a carriage road, a cog railroad (since 1890) and an auto road (since 1916).

As we proceed 5.9 miles, note how small the streams become but they still flow north. At an altitude of over 7,000 feet we cross Palmer Lake Divide. Still in the Foothills Zone, the trees are still Ponderosa Pines, but the streams start flowing south.

STOP #6. 5.9 miles. (Park beyond the sawmill in front of the green sign that says Monument $\frac{3}{4}$). We approach the town of Monument. We can see why it was so called—scattered between us and the green Rampart Range on our right are isolated rocks that look like monuments. Turn your head to 10 o'clock to see the most famous of these, the Elephant Rock.

Near here Major Long's men spent from 9:00 a.m. to 2:30 p.m. on July 11, 1820, and Dr. James went wild. "The botanist was at a loss which new plant he would first take in hand." One of the first surely must have been the Colorado Columbine, *Aquilegia coerulea*. This, one of the most appropriate Latin names, was suggested by Dr. James. *Aquilegia* means eagle, the columbine having spurs like an eagle's. *Coerulea* means sky-blue. The Columbine was

made the Colorado state flower in 1889. When Palmer Lake, a small town to our right behind Elephant Rock, was Colorado's first resort town, the narrow-gauged Denver and Rio Grande Railroad ran Sunday flower specials to it. All day everybody picked flowers, on the Chautauqua grounds, on the trail known as the Winding Stair. In the late afternoon lovely ladies posed for photographs on the rear platform of the train, their outing skirts still white and starched, their arms full of columbine, some with roots attached. In 1925 the Colorado Legislature belatedly passed a law to halt the mass extermination of the state flower. Please do not pick the Columbine!

We have just passed a sawmill to our right, reminiscent of the late 1860's when General Palmer, then engineer for the Kansas Pacific, later founder of Colorado Springs, offered to pay \$1.00 for each railroad tie delivered to the town of Kit Carson near the Kansas border. On the Rampart Range men cut Douglas fir, *Pseudotsuga taxifolia* or even Colorado Blue Spruce, *Pices pungens*, previously called *Picea parryi*. You can still see the naked chutes on the mountains down which they slid these trees.

About 2 o'clock, just south of a large white "monument" are the green roofs of the Mt. Heyman Nursery where, since 1907, the U. S. Forest Service has annually raised about two million evergreen trees. These are not sold, but supplied for re-forestation or planting on public places. Each spring organizations like the Boy Scouts or the Colorado Mountain Club plant trees on bare hillsides.

Before railroads crossed the Divide, Cheyenne and Arapahoe Indians murdered isolated settlers who dared build houses on their great buffalo hunting ground. At the McShane Ranch (out of sight below a red garage at about 2 o'clock) a stone house was connected by underground passage to a circular stone fort. Here ranchers brought their families to "fort up" many times during 1865-1868. Part of the fort still stands. (Drive 5 miles to the entrance of the Air Force Academy.)

When we turn into the Air Force Academy grounds, notice the small trees newly planted from the Mt. Hermann Nursery. Of them Dr. Edwin James would have surely approved, even though he did burn acres of trees when he neglected to put out his camp fire on his way up to Pikes Peak.

Editor's Note — For more information about Dr. Edwin James, read *Rocky Mountain Naturalists*, by Joseph Ewan, Chapter 2. Published by the University of Denver Press, 1950.

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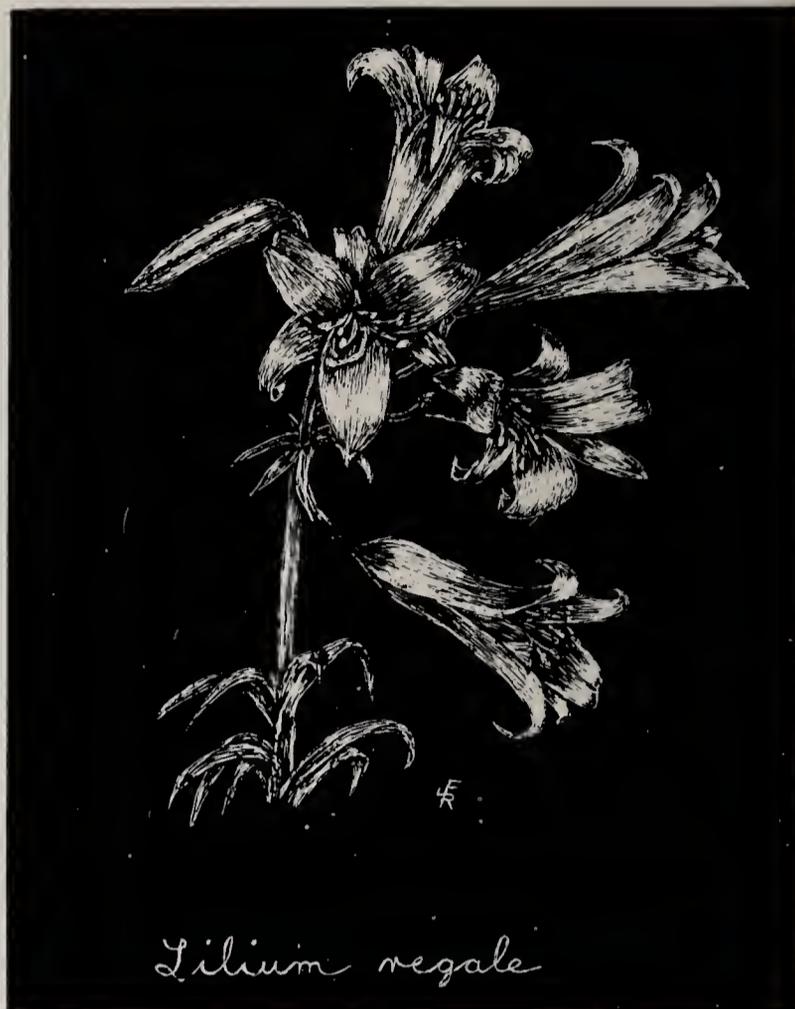
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EXOTICS OF COLORADO

HELEN MARSH ZEINER



The beautiful regal lily, *Lilium regale*, can be found blooming in July in many Denver gardens. This is one of the exotics of Colorado which has come a long way from its original home. A native of western China, where it was found growing wild, the regal lily was brought to this country by the well-known plant explorer Wilson. Because of its beauty, its long period of bloom, and its relative hardiness, the regal lily has become one of our most treasured ornamentals.

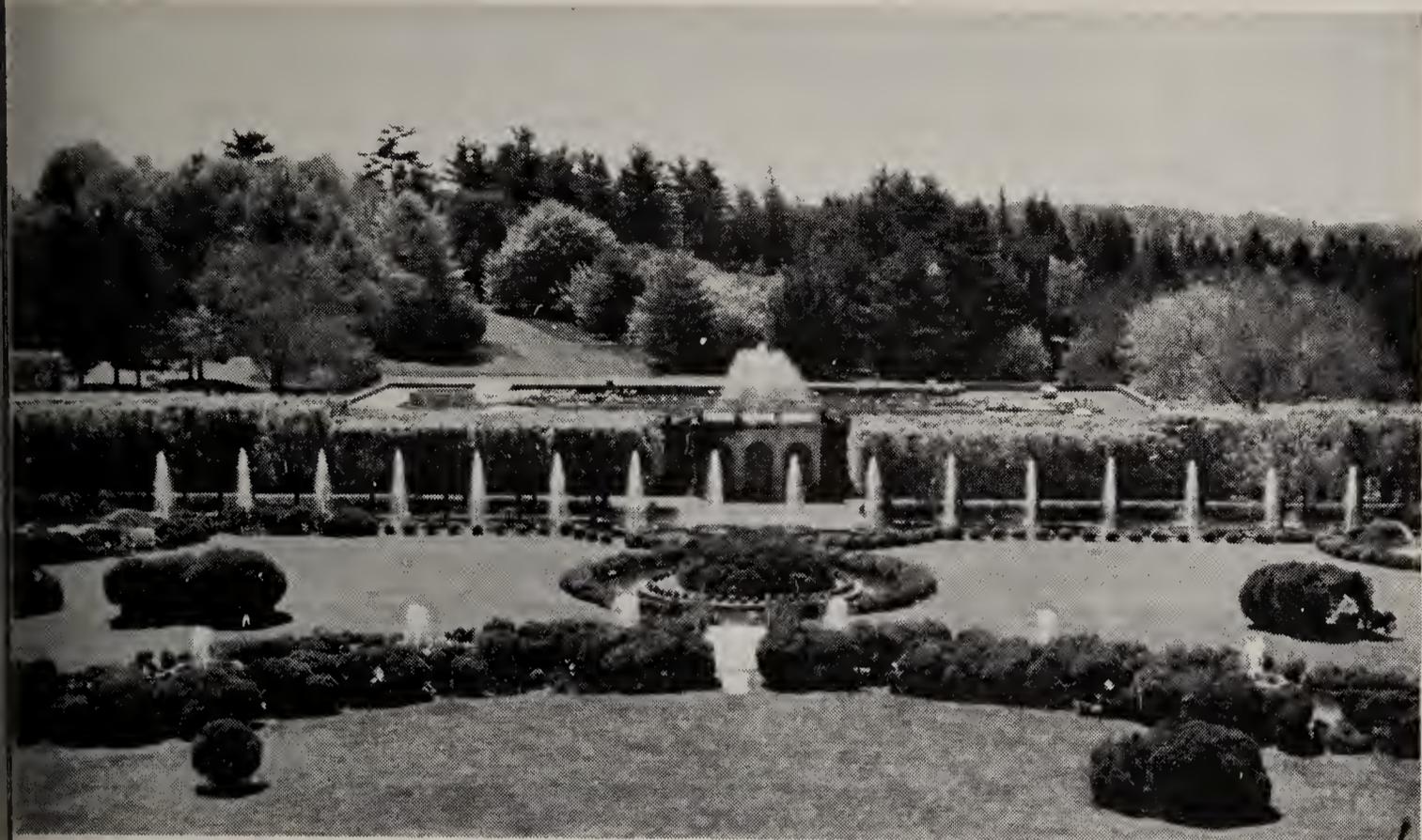
The large trumpet-shaped flowers are produced one to seven or more per stalk. Each flower will be from four to six inches long and nearly as wide. The petals are white and waxy, but with colored markings. On the inside of the flower they are bright yellow at the base, giving the flower a golden throat; on the outside they are tinged with yellow or rose and have purple midribs. The anthers are reddish brown, contrasting beautifully with the gold and white interior. In addition to its lovely bloom, the regal lily is also a delightfully fragrant lily.

The beautiful blooms are set off against deep green foliage on stems which grow four to six feet high.

Regal lily likes sun, loamy soil, and moderate moisture after blooming. The bulbs may be planted in either fall or spring, and should be set about nine to twelve inches deep. In Colorado the regal lily should be mulched to protect it from our late spring frosts.

Diseases in lilies may give some trouble, but should not deter one from including them in the garden. Buy healthy bulbs, and keep them separated from other lilies. If they become diseased or die because of too much moisture in the border, surely they are worth replacing as necessary.

There are good books on lily culture available in Botanic Gardens library; also *Green Thumbs* of September 1948 and July and August 1950 have excellent articles on lilies.



Fountain Garden as viewed from the viewing platform at Longwood Gardens.

LONGWOOD GARDENS

UNIQUE HORTICULTURAL DISPLAY

VIOLET K. THOMAS*

Longwood Gardens at Kennett Square, Pennsylvania is unique among horticultural displays. Its conservatory, surrounded by 100 acres of outdoor gardens, attracts more than 450,000 visitors a year. It is not a botanical garden that it makes no attempt to have complete collections of any groups of plants.

Its horticultural importance is older than its name. In 1702 George Pierce received a grant of land from William Penn on which his sons built a brick house in 1730 and planted around it many ornamentals not native to the area. The house is still standing as are some of the trees planted by the Pierce brothers, among them a large cucumber magnolia *Magnolia acuminata* and a ginkgo *Ginkgo biloba* which is thought to have been one of the first planted in this country.

The property remained in the hands of the Pierce descendants until 1905. When the late Mr. Pierre S. DuPont acquired it in 1906, he kept the plantings near the house much as they had been laid out by the original owners and gradually developed other areas along more formal lines so that Longwood Gardens now has many features which remind one of the gardens of the Old World. It has been open to the public since the Conservatory was completed in 1921. Throughout the grounds, dogwood, flowering cherry and crab, magnolias, lilacs, azaleas and rhododendrons are accented by firs, hemlocks, spruces and hollies. The Arboretum features forest and ornamental trees adaptable to the climate. A few that are unusual to eastern gardens are the giant sequoia

*Mrs. Thomas is Horticultural Informationist in the Department of Education at Longwood Gardens.

Sequoiadendron giganteum, dawn redwood *Metasequoia glyptostroboides* and the dove tree *Davidia involucrata*.

Areas of particular interest include plantings of outstanding vegetable varieties, an herb garden, a rock garden and a topiary garden which was moved from Long Island to be preserved as a demonstration of this disappearing art. Outdoor pools provide the most outstanding summer display of tropical water lilies in the East.

Most recent of several rose gardens are the AARS gardens in which are grown most of the All-America Rose Selections since their inception. Other areas of the outdoor gardens feature perennials, annuals and bulbs.

Of universal interest are the famous fountain areas. The Italian Water Garden is built on the design and dimensions of the garden at the Villa Garberaia near Florence, Italy, the only changes being the substitution of plants adaptable to the climate of the Philadelphia area for the clipped cypress of the original, and the addition of the fountains which are in operation during many days of the summer season.

The Open Air Theatre which seats 2100 people is in use on many summer evenings when local organizations give musical or dramatic presentations. Here is located the unique "water curtain" and the stage fountains which provide a breath-taking spectacle following the stage performances.



The fountain garden at Longwood provides a breath-taking spectacle at night.

In front of the Conservatory is the most famous fountain system in the country. Covering about three acres, the series of fountains and canals is landscaped with box and outlined with clipped Norway maples. The fountains create a restful atmosphere for summer daytime visitors and when illuminated at night in a symphony of colored lights and accompanied by the music of the electronic chimes, they provide an awe-inspiring, never-to-be-forgotten experience for the

viewer. Evening displays are presented every Wednesday from May through October and following all events in the Open Air Theatre.

The Conservatory at Longwood Gardens is the ultimate in horticultural display. Approximately three and a half acres in extent, it provides a year-around display of the choice varieties of well-known plants as well as a collection of the finest ornamentals of tropical and sub-tropical climates to be found in this country. The large main room provides a kaleidoscope of color throughout the year. A carefully planned schedule of plantings in the growing houses provides a constant supply of blooming plants for the borders. Green lawns, Australian tree-ferns and acacia, tropical bougainvillea and creeping fig serve to obscure the walls and pillars and give the feeling of walking among trees.

In the Conservatory, winter months feature the extensive camellia collection, acacia in February and March and rhododendron and Indian azaleas in early spring. A chrysanthemum display involving some 3500 plants draws many visitors during the autumn months as do the tropical displays at Easter and Christmas.

Other areas of the Conservatory have permanent displays in the tropical terrace garden, the rose house, the fern passage, the desert house and the economic house which contains plants from other parts of the world which are important for food, fiber and medicine.

The orchid display is one of the most popular in the Conservatory. Supplied from the Longwood Gardens collection of more than 5000 orchid plants, the display is changed twice a week and is always in top condition.

Since Mr. DuPont's death in 1954, Longwood Gardens has been administered by the Longwood Foundation, Inc. which he established to perpetuate the gardens for the enjoyment of the public and the benefit of horticulture generally. Administration is in the hands of the Foundation's trustees under whom Dr. J. J. Seibert, the director, and a capable staff of specialists have expanded the activities of the Foundation. All plants have been labeled for the information and convenience of visitors. A program of ornamental plant introduction in cooperation with the U. S. Department of Agriculture has resulted in collecting trips by plant specialists to Japan, Australia, Brazil, Java, the Lesser Antilles and the Mediterranean region of Europe. The purpose of these expeditions has been to seek out plant materials which may have ornamental value not only at Longwood Gardens but in other parts of the United States as well.

The Foundation is also cooperating with educational institutions in various parts of the country on horticultural research. In the autumn of 1960 a geneticist

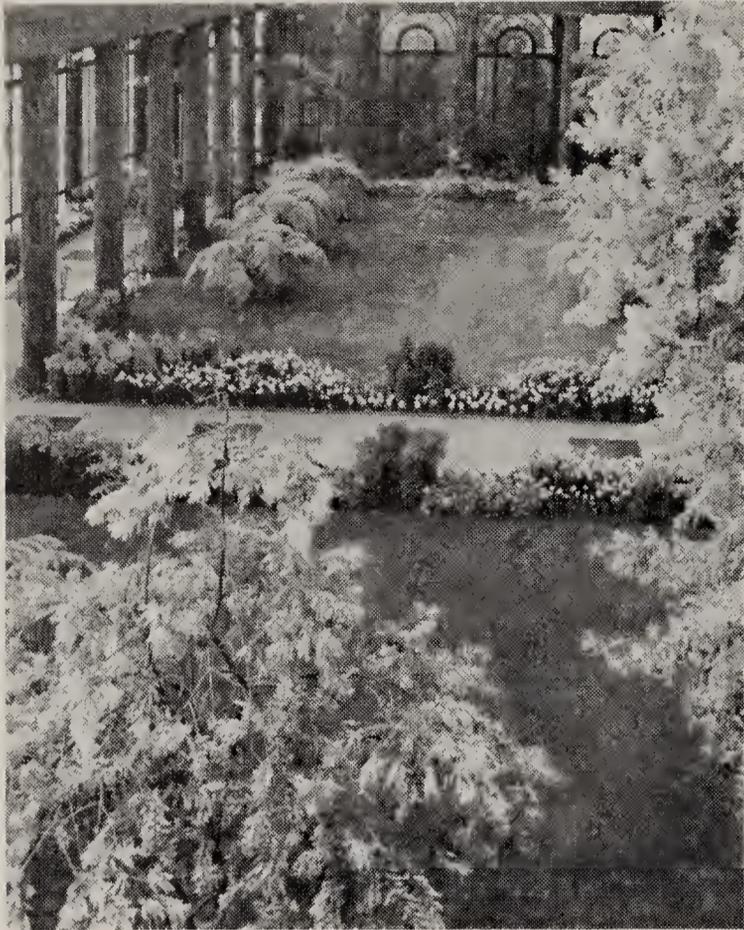
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Part of the conservatory interior. Acacia in full bloom in foreground. Figs envelope the pillars.



Part of the tropical terrace. Banana or "giant Cavendish" dominates this scene.

was added to the staff at Longwood Gardens who will work on the breeding of ornamentals.

A range of experimental greenhouses is devoted to determining cultural conditions for new materials as well as propagation under various conditions of mist, air-conditioning and so forth. A nursery is maintained for propagation of outdoor ornamentals for use in the display areas.

Educational activities include a series of free horticultural lectures during the winter months, short courses in gardening, botany, landscape design and flower arranging. Also, under the Department of Education, the office of Horticultural Information handles inquiries on horticultural matters and arranges tours for groups of school children, garden clubs and other interested groups.

Situated some thirty miles from Philadelphia and twelve miles north of Wilmington, Delaware, Longwood Gardens is open every day of the year, the conservatory from 11 A.M. until 5 P.M. and the outdoor gardens from sunrise to sunset. There is no admission charge at any time. On Sunday afternoon the famous Longwood Gardens pipe organ, one of the largest in this country, may be heard in the Conservatory from 3 to 5 o'clock.

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BUILDING A ROCK GARDEN

OR

HOW TO MAKE A MOUNTAIN-SIDE OUT OF A MOLE HILL

JAMES R. FEUCHT

Rock gardens are perhaps the least popular type of garden in our landscapes today, mainly due to the high-maintenance reputation that rock gardens have acquired. (Rock gardens have been increasing in popularity in the past few years, however.) It is true that rock gardens have relatively high maintenance requirements but if it is properly prepared in the beginning, this disadvantage can be held to a minimum and the joy received in return will far outweigh the maintenance tasks.

Before reading the remainder of this article, examine the sketch below depicting 15 common errors made in rock garden construction. See if you can pick out the errors. The solution will be given in the discussion which follows.



Do You Have The Proper Setting for a Rock Garden?

To build a rock garden just because your neighbor has one or because you think "it would be nice" is pure folly if you do not have the proper setting for it. This is error #1 made in the above sketch, where the "rock garden" is nothing but a rock pile. It has no purpose and does not look natural. A better place would have been on a steep slope such as found along the sides of "tri-level" homes or on any slope that would be difficult to mow if planted with grass, too steep for a flower bed and not steep enough to warrant a retaining

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wall. If you do not have such a slope and still desire a rock garden, find a good excuse for one such as to hide a compost pit. In this case, a slope constructed around the rim of the pit which has been built up on the inside with a stone wall. The same can be done to hide an area where garbage and trash are kept. Usually this type of rock garden will be small, but if properly constructed, will be appealing and help to distract attention from the unsightly area you are trying to hide. It can be constructed to look natural when viewed from a short distance even though the slope is not continuous and is merely backed up against a retainer wall.



Small rock garden screening a compost pit. (Arrow.)



Large rock garden on a steep slope.

Photos by the author

Follow A Plan

Before attempting to do any of the actual construction work, formulate a definite plan, whether it be on paper or pictured in your mind. This does not mean that you have to plan for every rock in size and shape, but the general outline of the area, the highest point and the general grouping of the plants should be well thought out. Provision should be made for proper flow of water (run-off). Slope away from buildings and from areas where water will not drain away readily.

“The advantages of a rock garden are, primarily, an element of picturesqueness that nothing else can provide, and the possession of a place in which can be grown some of the loveliest flowers on earth . . .”

From — “The Rock Garden” by H. S. Adams — 1912

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Selection and Placement of the Rock

The most important step in rock garden construction and perhaps the most commonly erred step, is the selection and proper placement of the rock. Use the following rules when accomplishing this step:

(1) Avoid using small rocks that will rapidly become buried or screened with plant material. (Error #2 in the above sketch.) The size of the rock that you use should be in proportion with the area the rock garden is to cover. A garden having an area of less than 300 sq. ft. should not contain rock smaller than 18 inches in their longest dimension. Gardens of greater than 300 sq. ft. but less than 900 sq. ft. in area should have rocks no smaller than 2 feet in their longest dimension.

(2) Avoid uniformity of rock sizes and shapes. (Error #3.) Variation of sizes and shapes helps to obtain a more natural appearance. Too much variation in shape, or where rocks are not of the same geological type, can destroy this natural look. (Error #4.) Avoid rocks of uniform dimension. (Error #5.)

(3) Place rocks so that they follow the same general plane or geological formation. (Errors #6 and #7.) Similarly, avoid rocks that "stick out like a sore thumb". (Error #7.)

(4) Bury enough of the rock so that they will remain in place and will look like they have been there for thousands of years. This will help avoid the "balancing rock", (error #8), the "hanging rock", (error #9), and the "sliding rock", (error #10).

(5) Avoid "stacking" rocks on top of each other using round-bottomed rocks for the base of larger, flatter rocks. (Error #11.) This gives the formation an appearance of precariousness even though it may be quite stable.

(6) If you decide to have a waterfall, avoid starting it from a visible pipe or other unnatural object as in error #12. Start it from a point not visible to the observer from any angle or from a natural-appearing crevice in a rock or group of rocks. A limited amount of cement may be necessary to make a water-holding trough for the waterfall and the collecting basin, but all cement should be hidden with rocks and plant material. The entire aesthetic value of a waterfall can be ruined by an undisguised cement pool, especially if it is as symmetrical as the one depicted in the sketch. (Error #13.)

Most important, when placing the rocks, is the general flow of water from one place to the next. If not placed properly, a moderate rain is sufficient to wash the soil away.

Before planting a rock garden, be sure that you have allowed sufficient space for the plants you wish to use and it is always best to sprinkle the area rather heavily with water to help settle the rocks and surrounding soil a few days before planting.

Continued Next Page

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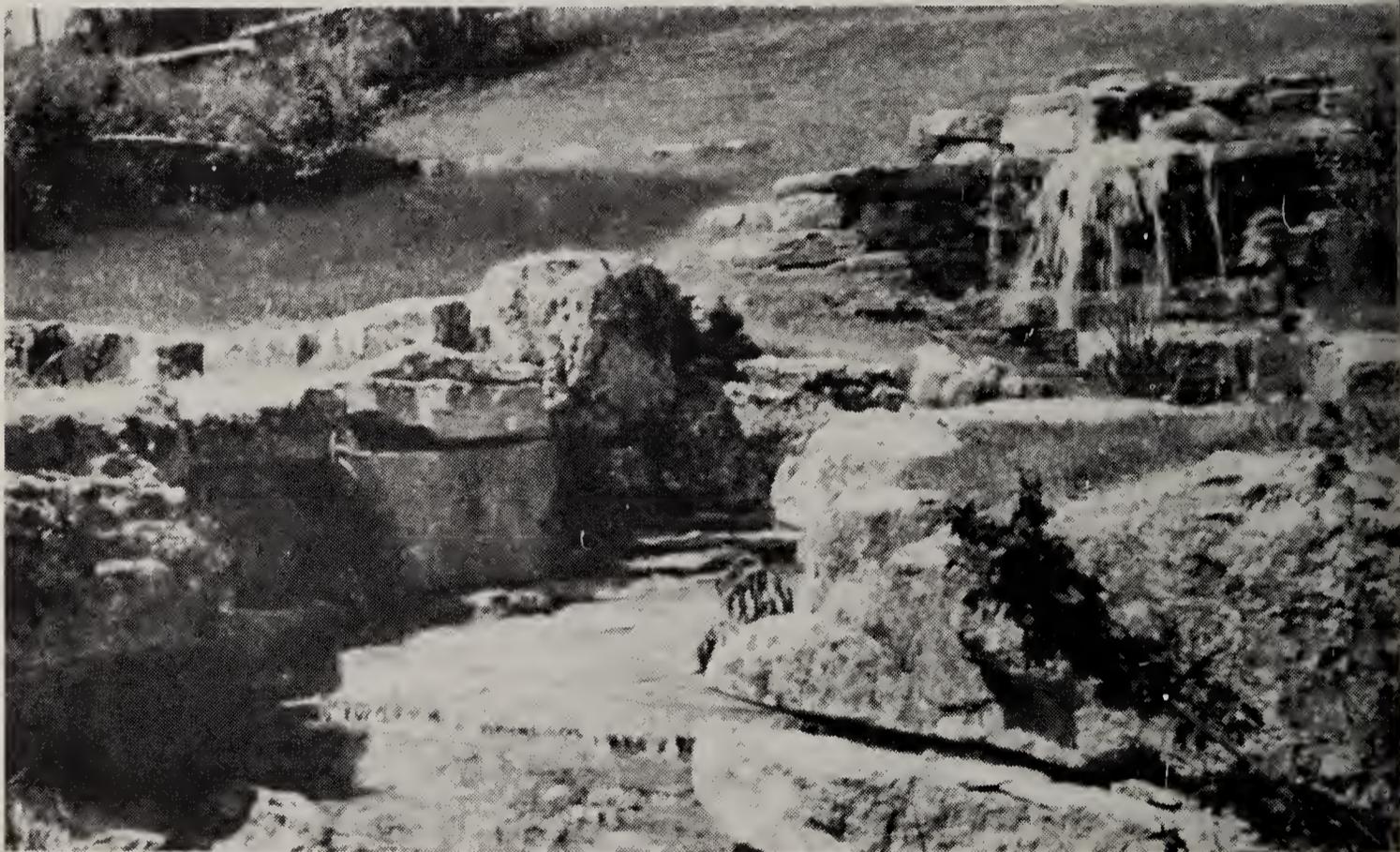
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Good usage of rock and plants. Rock garden of Mr. & Mrs. J. V. Petersen, Littleton, Colorado.



A naturalistic "brook". Installed by Lew Hamme Inc. for Dr. & Mrs. Reid Johnson, Littleton.



A naturalistic waterfall installed by M. Walter Pesman, Landscape Architect, for the Hat Ranch, Kaycee, Wyoming.

Selection and Placement of Plant Material

Now that the rocks are in exactly the places that you wanted them, the real fun begins in planting the area. It's fun because you can almost entirely forget one of the principles of design—*variability*, and because there are so many interesting plants to choose from. In most garden designs we try to avoid a vast variety of plants and stick to a few which we repeat throughout the landscape. In rock gardens, however, we can get by with a "botanical collection"

and, in fact, improve the aesthetic value by doing so. We still must maintain some reserve lest we destroy the "natural" effect that we tried so hard to obtain.

When selecting the plants, keep in mind the relative size of the rock garden just as we did when selecting the rock. Plants that become very large (either in height or in width) may soon dwarf the whole rock garden as depicted in Error #14. It is usually best to plant one or two varieties of "background plants" first, in a randomly dispersed manner. Plants of this nature are the low, spreading ground-cover varieties such as the numerous types of *Sedum* and *Semprevivum*. Among these, plant as many "specimen" plants as desired, perhaps even repeating these occasionally. Above all, avoid over planting. Most rock garden plants have a tendency to spread rapidly and often become a pest in one or two growing seasons if not controlled.

Choose plants for contrasting texture of foliage as well as for color and time of bloom. Some of the best rock garden plants do not have a showy bloom at all but are prized for their unique foliage.

(For a list of rock garden plants for all situations and adapted to Colorado see the July, 1959 issue of *The Green Thumb*, "How to Make a Good Rock Garden" by, George W. Kelly.)

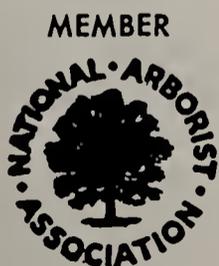
Using Artificial Ornaments

The use of artificial ornaments in a rock garden is somewhat a matter of personal "taste" and depends upon the particular effect you desire to obtain. For instance, it is quite acceptable to include a Japanese stone lantern in a rock garden that looks oriental or was intended to be a copy of an oriental garden. You may even wish to place an artificial frog near the pool. This is fine if—the figurine is in proper proportion with the remainder of the garden. Some ornaments, however, are *never* good in a rock garden because they do not "fit in". This is the case in the above sketch. (Error #15.) The windmill, on the top of the rock pile, although not entirely fitting for the situation, is much more pleasing than the "crystal ball" which is so entirely out-of-place that the rock garden would lose its natural appearance even if it had been constructed and planted properly.

A Word About Maintenance

Assuming that you have completed your rock garden to your satisfaction, the next step is to establish a regular and systematic program of maintenance. Weeds are inevitable but by hand weeding once or twice a month (perhaps even once a week) you can keep ahead of them. Occasionally, dead flowers will have to be removed and the more vigorous plants will have to be thinned or cut back.

Don't let a season slip by without giving your rock garden the needed attention. It is too difficult to "catch up with it" if you neglect it.



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YOU PROBABLY HAVE A CHALK-GARDEN

M. WALTER PESMAN

Ben Franklin was a scientist and a publicity expert as well. After he had preached the use of lime "to make the soil sweet" without making much headway on his neighbors, he decided on a visual demonstration.

In the center of a conspicuous piece of lawn he applied lime in big letters L-I-M-E. Before long nature did the rest: wherever the lime was spread the grass showed more luscious growth, doing its own advertising. It made a big impression on whoever saw it.

But Colorado is not Pennsylvania and science has made big strides since Ben Franklin. Where do we stand now on the question of lime, sweet soils and chalk gardens as they designate alkaline conditions in England?

Generally speaking, our entire arid region is an immense "chalk garden." Newcomers from other parts should try to understand what that means in garden practice. They should study up on the question of pH, meaning the degree of soil acidity. Sour (acid) soils show a low pH, such as a pH of 5 and less than a pH of 7 in any case.

Acid-loving species include plants such as rhododendrons, azaleas, hollies, mountain laurels and blueberries. They will not do well in our alkaline soil which may well show a pH of 7 and quite a bit higher.

The question arises naturally: "If lime improves an acid soil, why not add some sort of an acidifier?" It sounds simple.

In his recent book "Your Garden Soil" R. Milton Carleton says: "To lower the pH of light sandy loams one full point (i.e. from pH 6.0 to 5.0) add 10 pounds of dusting sulfur per 1,000 square feet. In medium loam soil, add 15 pounds, and to heavy clay loam, 20 pounds."

That is good advice—within limits. Do not expect miracles from making your soil acid. It will work only to a certain extent. What is worse, it will not last. Remember that all our irrigation water is alkaline, and that all surrounding soil is alkaline, so that we can only expect a limited bit of ground to be improved.

PRACTICAL ADVICE

To be happy in your gardening in this arid region, forget about growing rhododendrons, azaleas, hollies and blueberries. They are for experts. Yet that also includes flowering dogwoods for the present, until the plant breeder develops an alkali-tolerant kind.

There are a few broadleaved evergreens that you can grow, such as Oregon Grape, some firethorns, and several euonymus. Make the best of them.

There are so many kinds of plants that love our alkaline soil, that we can have beautiful gardens anyway; make the best of those kinds. Lilacs and irises, just to mention two, do as well here as anywhere; so do most annuals.

In conclusion let me pass on a "trick" I was told in Geneva where they have quite a bit of lime soil. The Botanical Gardens plant certain acid-lovers on decaying tree-stumps. The acid developing from the decay helps the particular difficult plant.

In many borderline cases addition of sulfur will do good such as with the red oaks. But remember that you can overdo it. After all, there is no substitute for good common sense. Good luck!

Scoops by Scott

MRS. JOHN SCOTT

Plant materials used in landscaping effects can lead a double life, at least many of them. The dual role refers to cutting materials for floral designs or arranging.

Dogwood, *Cornus stolonifera coloradensis*, will serve as an example. A rapid grower, its red bark can be pruned for winter bouquets, especially during holidays. The contrast is good with evergreens outdoors or indoors. The white spring flowers hold up well, and are interestingly different. Its fall fruits or berries are attractive too. There are other versatile shrubs for the knowing.

Caladium is one of many usable pot plants. Around the patio, in window boxes or hanging baskets during the summer, a few leaves can be snipped in back without notice. Come winter and caladiums can cheer up any corner in the home. Its foliage is almost a substitute for flowers, with a leaf or more sparkling in an arrangement.

Foliages in design can let you down or wilt if they haven't been conditioned or hardened properly. By and large the more mature the plant and its leaves the more wilt-resistant it is. Submerge the entire leaf in cold water, as a starter. But there are variations, some require only a few hours to become turgid (crisp) while others take 24 hours or even more. A few need to begin in hot water (80 to 100 degrees). Experimentation is the best procedure, because no two plantings are the same. The more healthy a plant is, the longer its lasting qualities.

Varieties are important. Some flowers just don't lend themselves to arranging, because their life span (after cutting) is too limited for the time and effort involved. Varieties, cut-flower wise, are improving. Some old varieties are coming out with built-in endurance. Most nurseries now list or comment upon those with favorable cutting qualities.

All plant materials, it seems, should be well-watered a day or more before cutting. With zinnias this is a must. Mud boots may be part of an arranger's cutting equipment. A sharp knife is preferable to shears, and sugar or vinegar recommended in the conditioning water for many plants. A recognized authority is Victoria R. Kasperski, and her book "How to Make Cut Flowers Last" is required reading for designers.

The following are reputedly long-lasting:

Spike, Line or Panicle Forms

Artemisia — 10 days	Heather — Almost Indefinitely
Stilbe — 7 days	Larkspur — up to 10 days
Barley — 1 to 2 weeks	Lavender — up to 10 days
Heart-Tongue — 1 week	Lupine — up to 7 days
Bells-of-Ireland — 1 to 2 weeks	Monkshood — 5 to 7 days
Blue Lobelia — 6 to 10 days	Snapdragon — 5 to 12 days
Anterbury Bells — 1 to 2 weeks	Speedwell — 4 to 6 days
Rockscumb — 1 to 3 weeks	Squill — 5 to 8 days
False Indigo — 5 to 7 days	Thermopsis — 7 to 12 days
Boxglove — 5 to 10 days	Torch Lily — up to 1 week
Gas Plant — 5 to 7 days	Yucca — 4 to 7 days

Filler or Spray Flowers

Baby's Breath — up to 1 week
Basket-of-Gold — 5 days
Bleeding Heart — 4 to 6 days
Candytuft — 5 to 7 days
Coral-bells — 5 to 10 days
Coreopsis — 1 to 2 weeks
Feverfew — up to 1 week
Golden Marguerite — 7 to 10 days
Houseleeks — 5 to 7 days
Jack-in-the-Pulpit — 4 to 7 days
Laurel — up to 2 weeks
Lemon-Verbena — 7 days
Love-in-a-Mist — 7 to 10 days

Meadow-Rue — 5 to 10 days
Mexican Fire Plant — 1 to 2 weeks
Mignonette — 5 to 7 days
Phlox — 7 to 12 days
Primrose — 3 to 8 days
Purple Loosestrife — 4 to 7 days
Queen Anne's Lace — 7 to 12 days
Sea-Lavender — 5 to 10 days
Spider Flower — 4 to 5 days
Statice — Everlasting
Sweet Pea — 5 to 8 days
Sweet William — 1 to 2 weeks
Tansy — 1 to 2 weeks

Head or Round Flowers

Aster, China — up to 2 weeks
Bachelor's Button — 5 to 8 days
Black-Eyed Susan — 1 to 2 weeks
Blanket Flower — 7 to 10 days
Blue Lace Flower — 7 to 10 days
Chrysanthemum — 1 to 3 weeks
Columbine — 5 to 7 days
Cosmos — 5 to 8 days
Daffodils — up to 2 weeks
Dahlias — 5 to 7 days
English Daisy — 7 to 10 days
Globe Amaranth — up to 1 week
Globe Flower — up to 1 week
Globe Thistle — up to 1 week
Goldenrod — 1 to 3 weeks

Iris — 3 to 5 days
Leopard's Bane — up to 12 days
Lilies — 5 to 8 days
Lily-of-the-Valley — 3 to 7 days
Marigold — 1 to 2 weeks
Mexican Sunflower — 5 to 9 days
Painted Tongue — 4 to 7 days
Pansy — 4 to 6 days (take roots)
Petunia — 4 to 7 days
Scabiosa — 4 to 8 days
Sunflower — 6 to 10 days
Teazle, Fullerweed — 5 to 8 days
Wall flower — 6 to 12 days
Yarrow — 3 to 15 days
Yorktown Onion — 4 to 7 days

For Foliage — Most very long-lasting

Yucca
Artemisia
Beebalm
Herbs, many varieties
Houseleeks
Ivy, English
Lantana
Laurel

Meadow Rue
Nasturtium
Plantain Lily or Funkia
Rue
Sage, Several varieties
Snow-on-the-Mountain
Spurge
Woolly Lamb's Ear

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WHAT IS YOUR BOTANIC GARDENS DOING?

From time to time your Denver Botanic Gardens will furnish you with report of the activities being carried on in the Gardens. To better appreciate the improvements being made, visit us whenever you get a chance and watch us grow.

Spring Planting—During our usual busy spring months the Botanic Gardens has planted over 300 trees and shrubs. Included in the list of trees and shrubs planted are, to name a few, Schwedler Maple, *Acer platanoides Schwedleri*; Cutleaf Weeping Birch, *Betula pendula laciniata*; Cutleaf Staghorn Sumac, *Rhus typhina laciniata*; Scots Pine, *Pinus sylvestris*; Foxtail Pine, *Pinus aristata*; Concolor Fir, *Abies concolor*; Highbush Cranberry, *Viburnum opulus*; Red-leaf Barberry, *Berberis atropurpurea*; and

of adding more and more plants each year, it will not be too long before the basic plan is fulfilled.

In addition to the tree and shrub planting, several new varieties of roses have been added to the rose gardens in City Park and at 909 York St. and many species of perennials have been planted in the perennial garden along the wall facing York Street.

Extensive sodding has been done this spring between the bulb (later the petunia) beds, between the newly planned perennial beds and on the southwest side of Botanic Gardens House.

Improvements have been made in the existing landscape around Botanic Gardens House with the help of a group of volunteers under the direction of Mrs. James R. Arneill, Jr., head of the Grounds Committee. Of the more tedious tasks performed by this group of ladies was weeding the rock garden on the southwest side of the house.

The Children's Garden Program — The Children's Garden Program which, this year, began on March 20, has a total enrollment of 116. Because of this large number of children, the classes were divided into four sections. Each section met for one hour every two weeks and now that planting time is here, many come every day except Sunday. Until the ground in the Children's Garden was properly prepared for planting, the children attended classes on how to plan the garden,



closely sheared Scots Pine planted at Botanic Gardens.

any others. All plants are placed according to a master plan which has been drawn to scale so that each plant is located accurately by careful measurements. By a continuous program

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Spring planting activities at the Botanic Gardens Children's Garden.

and the proper planting distances for each vegetable and flower. In one of the sessions, the children performed germination tests on several types of vegetable seeds by placing a known quantity of seed on paper towels, rolling the seed up in the towels, moistening the towels and placing them in plastic bags. The children kept a record of the germination and reported their results at the next class session. In this way, children were able to see what happens when a seed germinates and at the same time determine how good the seed was.

One of the hazards in a gardening program of this nature is the unpredictability of the weather. The outdoor program (the actual planting of the garden by the children) was delayed slightly due to snows that prevented proper preparation of the soil. The first date that the children actually worked in the garden was May 1. Two children work as partners on a single plot approximately 275 sq. ft. in size. The children are held responsible for keeping the garden watered and weeded throughout the growing season.

Soil Grading Operations — Final grading of various areas in the 18 acre

site at 909 York Street was performed this year starting as soon as the ground could be worked. The planting area between York Street and Josephine surrounding the parking area, was graded for planting and much of it is already planted according to plan. Rough grading of the cactus and succulent area has been accomplished with final grading to be finished before the end of the summer.

The development of a botanic garden is a dynamic endeavor. Therefore it is never "finished" but must continually expand and improve to better fulfill its purpose — that of research and public education.

MOUNTAIN PEAT

FERTILIZERS

Nursery Stock and Evergreens

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Nursery located 1 mi. west of South Wadsworth on the Morrison Road

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FEEDING HUMMINGBIRDS

Hummingbirds “. . . are most numerous in Colorado in the coniferous forests of the mountains, but a few occur on the plains in suitable places such as city flower gardens.

“Feeding is accomplished by means of a glass vial, filled with sweetened liquid and colored or decorated to resemble a flower, preferably red. Such feeders can be made at home or purchased.

“While sugar syrup is readily taken, it has been found that plain sugar is harmful to the birds, as it contains none of the protein and minerals necessary for a balanced diet, and may damage the liver. Honey, however, diluted to the consistency of nectar is normal food for them. Birds fed on sugar are said to be weak and listless, and young birds have died after consuming too much plain sugar, apparently of malnutrition. A mixture of one part honey to three of water is recommended. The water should be boiled to retard fermentation.”—Donald M. Thatcher, *Colorado Bird Notes*.

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The Green Thumb

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August 11, 1961

The trip will be made by chartered bus. For reservations send your
check for \$2.00 to cover bus fare to Mrs. Harlan Cluphf, 3888 So.
Grant Street, Englewood, Colorado, before the deadline, August 3.

Bring a picnic lunch

Trip Sponsored by the Colorado Federation of Garden Clubs.

For more information call Mrs. Cluphf, SU 1-0821.

The Green Thumb

AUG.-SEPT., 1961

25 CENTS

Magazine for Rocky Mountain Gardeners



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Fall Bulbs—Daffodils, Tulips, Hyacinths and all the little bulbs.

Notice to Landscapers and Nurserymen—We offer at wholesale—3000 plus, *Vinca minor*, Bowles variety; 1500 *Ajuga*; 500 *Cerastium tomentosum*; 500 Delphinium, specific hybrids, all colors; 1000 *Festuca glauca*; 500 Boston Ivy; 500 Engelman Ivy; 300 Chrysanthemums. All the above grown in number 10 cans. Heavy and excellent quality. Come see them.

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Trees, Shrubs, Roses, Evergreens, Ground Covers, Rock Garden Plants, Hardy Vines, all in containers.

AUG.-SEPT.

The Green Thumb

Vol. 18

No. 7

To conduct research on plants, both native and exotic, in varied plant zones of our region, to evaluate their economic, medicinal and horticultural potentials.

To coordinate the knowledge and experience of botanists, horticulturists and gardeners.

To educate the public in the best use of horticultural materials.

To maintain a large collection of plant species and varieties for study and display.

EDITORIAL

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Editor

THE COVER

Gentiana calycosa
(*Gentiana parryi*)

Painted by

Emma A. Ervin
See Page 231

Members



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REGULAR MEMBERSHIP, \$5.00; PARTICIPATING, \$10.00;
SUPPORTING, \$25.00; CONTRIBUTING, \$50.00; SUSTAIN-
ING, \$100.00.

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DENVER BOTANIC GARDENS, INC.

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MA 3-1133, Ext. 428

909 YORK ST.

DENVER 6, COLORADO

Calendar Of Events

Every Saturday Morning—9:10 a.m.
KLZ Radio. The Green Thumb
Program by Herbert Gundell, Den-
ver County Agent.

Every Saturday Afternoon—4:30 p.m.
KLZ-TV Channel 7, The Week-end
Gardener by Herbert Gundell.

Third Sunday every month—Colorado
Cactophiles at members' homes.
Call WE 4-1506.

Every Monday — 8:10 p.m. 8 Week
Course in Floral Design. Loretto
Heights College, Art Studio. Starts
September 18. Mrs. John Scott, In-
structor.

Saturday, September 9th — 1:30
p.m. Tree Class in Washington Park.
M. Walter Pesman.

AT BOTANIC GARDENS HOUSE SEPTEMBER

5th — Tues., 10:00 a.m. Hygiene,
Colorado Garden Club Tour

6th — Wed., 7:30 p.m. Botany Club

7th — Thurs. 7:45 p.m. Orchid
Society

8th — Fri., 9:30 a.m. Southern Hills
Garden Club

11th — Mon., 10:00 a.m. Judges'
Council

12th — Tues., 10:00 a.m. Herbarium
Study group

4:00 p.m. Citizens' Street and Shade
Tree Committee

7:30 p.m. Evergreen Garden Club

13th — Wed., 7:30 p.m. Landscaping
Contractors

14th — Thurs., 2:30 p.m. State His-
torical Society Volunteers Tea

7:30 p.m. Rose Society

18th — Mon., 10:00 a.m. D.A.F.
Board Meeting

4:00 p.m. Denver Botanic Garden
Board Meeting

19th — Tues. — 8:00 p.m. Tree Class
Dr. A. C. Hildreth

20th — Wed., 9:30 a.m. Fun with
Flowers Workshop

21st — Thurs., 10:00 a.m. "Around
the Seasons" Meeting

25th — Mon., 2:15 p.m. Colorado
Chapter D.A.R. Tea

27th — Wed. 7:30 p.m. Landscaping
Contractors

OCTOBER

2nd — Mon., 9:30 a.m. Denver Bo-
tanic Gardens Junior Committee

3rd — Tues., 1:00 p.m. Mountai-
View Garden Club

8:00 p.m. Tree Class, Dr. A. C.
Hildreth

4th — Wed., 7:30 p.m. Botany Club

5th — Thursday 7:45 p.m. Orchi-
Society

NOTES AND NOTICES

CITATION FOR DR. HERMANN — Dr. A. A. Hermann, 131 S. Birch
Street, has received a citation from the U. S. Army for eight years of service
in supplying flowers to patients at Fitzsimons General Hospital. The citation
read in part: "He expended a great deal of energy, time and personal funds
in an effort to produce more and better flowers. . . . He has supplied enough
flowers for each bed patient to have a small bouquet, with larger bouquets for
each of the wards."

Dr. Hermann, a former director of the Colorado Forestry and Horticulture
Association, a member of the Denver Botanic Gardens and of the Men's
Garden Club of Denver, has also supplied other Denver hospitals with flowers.
In addition he has opened his beautiful garden for tours by many garden clubs.

A CLASS IN DESIGN AND CARE OF THE GARDEN OFFERED BY EXTENSION DEPARTMENT COLORADO UNIVERSITY — Beginning Wednesday, Sept. 20, from 6:20 P.M. to 8:00 P.M. and finishing on Wednesday, Nov. 15, M. Walter Pesman will give a class for home gardeners under the auspices of Colorado University. Both design and maintenance will be treated. The ways of solving problems of creating garden individuality will be discussed. Patios, fences and stone work will be given special attention. Classes will be held in Temporary Building A, at 19th Ave. and Birch St. There is a chance for the do-it-yourself gardener to get assistance from a competent landscape architect of long standing.

MRS. JOHN SCOTT WINS PRESS AWARD — Mrs. John Scott, author of the "Scoops by Scott" column in *The Green Thumb*, won second place honors in the magazine category of an annual press competition sponsored by the National Federation of Press Women, Inc. Mrs. Scott won the award for selections of her column appearing monthly in *The Green Thumb* which, at that time was entitled "Composting."

MRS. STANLEY EXHIBITS MINIATURE GARDENS — Under the sponsorship of the Denver Botanic Gardens, Mrs. Helen D. Stanley, 1374 Washington St., prepared and exhibited an exquisite collection of miniature gardens in the lobby of the Empire Savings, Building and Loan Association, 54 California St., Denver. The showing was scheduled for one week but proved so popular that it was continued from July 31, to August 11. It is estimated that 2,000 people saw the exhibit.

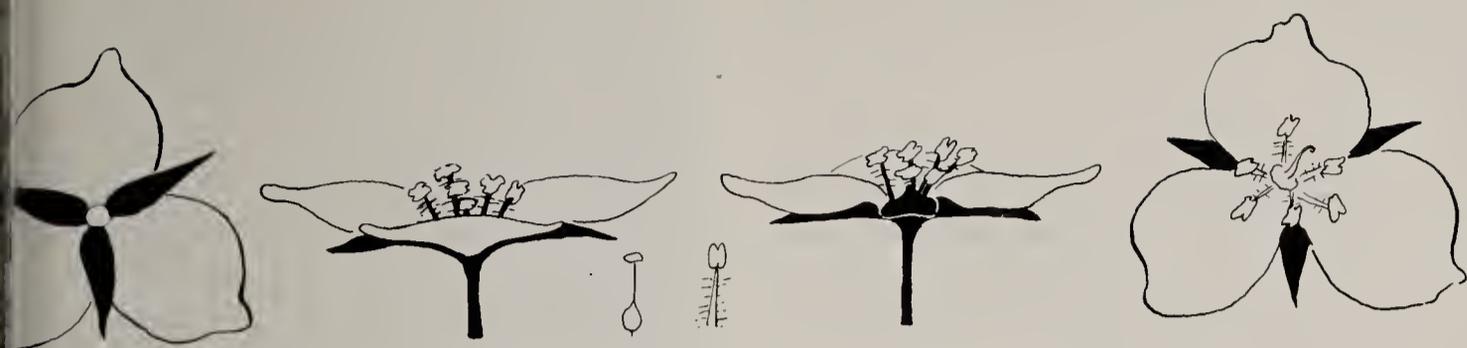
ORCHID SHOW — The Denver Orchid Society will again hold the Orchid Show at Botanic Gardens House on Saturday and Sunday, October 21 and 22, from 10:00 A.M. to 6:00 P.M. There is no charge and the public is cordially invited to view this display of beautiful orchid plants.

STATE FLOWER SHOW SCHOOL — The correct dates for the State Flower Show School are October 9-10-11 at Botanic Gardens House.

NOTED VISITORS — Dr. Frits W. Went, Director of Missouri Botanical Gardens, St. Louis, Missouri, met with members of our Board of Trustees on July 3 at Botanic Gardens House. He discussed his famous Climatron which was opened last year and also various matters pertaining to botanic garden operation.

Dr. Raymond C. Allen, Director of Kingwood Center, Mansfield, Ohio, is here on August 22 to 24 to consult with members of the Board of Trustees regarding conservatories and display greenhouses proposed for the Denver Botanic Gardens.

FREE IRIS RHIZOMES — we invited you to come in and pick up an iris rhizome from our own garden. If you haven't done so, you had better make haste as our supply is dwindling. We have been delighted with the reception of our invitation received from our members and hope that this will be only the first of such pleasant services we can render.



EMMA ARMSTRONG ERVIN

1874 - 1957

KATHARINE BRUDERLIN CRISP

Soon there will be on display at Botanic Gardens House the very interesting and extensive collection of water color paintings of Colorado wild flowers by the late Emma A. Ervin. The collection was begun at the turn of the century and year by year grew in size. Mrs. Ervin worked entirely with fresh plants. A wide range of plants is represented. As an artist-naturalist Mrs. Ervin became well known in the Longs Peak area through her enthusiasm for the beautiful wild flowers.

Emma Ervin was born in Georgetown, Ohio, February 26, 1874. Her parents were Andrew and Mary Armstrong and she was one of eight children.

Her early education was in the schools of Georgetown and later she attended the Cincinnati Art Academy. Matson Borglum was one of the instructors at the Art School of that time. Concerning her life at the Academy her sister writes "Emma's memories of the years at the Art Academy were always vivid and dear to her, some of her associates there remaining friends with whom she kept in contact all her life. While there she painted her most

outstanding work, a large canvas in oils of a mother and baby, often called a Madonna picture, although she did not mean it as such." This painting is in Denver in the possession of the daughter of her dearest friend.

Emma came to Colorado in 1895. She married Frank Ervin in 1896. Right after their marriage she and Frank returned to Georgetown, Ohio. Since they were both fond of flowers and the outdoors, Emma made sketches on their picnics in the creek hills and general country side. Many of the sketches were of the wild flowers.

After returning to Denver they became interested in a cabin site in Estes Park on land owned by Enos Mills. Mr. Mills deeded land south of Longs Peak Inn to them. Here they built their cabin, in which many happy days were spent. Between the Millses and the Ervins a staunch friendship developed. Mr. Mills would bring specimens from the alpine areas for Emma to sketch and paint. She herself was not strong enough to do any strenuous climbing.

Mr. Mills was a well-known naturalist of the Longs Peak area and for many years owned and operated Longs Peak Inn. Each evening in front of the

big fireplace guests would gather to listen to his nature stories. One of his stories was "The Story of a Thousand Year Pine." For this publication, Emma made the black and white illustrations. Through the years he published other books on nature subjects and Longs Peak Inn was famous as a meeting place for those who loved to explore the high country.

A striking view of Longs Peak was painted by Mrs. Ervin. Colored reproductions of this painting appeared on post cards which were published and sold by Enos Mills. The original painting is now owned by Mr. Roy Hamilton of Dallas, Texas.

The Ervins spent many weeks during each summer at their cabin and never failed to take a friend or two along to enjoy the beauty of the region. About 1914, Emma began her water colors of Colorado wild flowers. During the next twenty years the collection grew to more than 197 paintings. The drawings are life size, accurately drawn and colored. Painstaking, detailed drawings of the flower parts were also added. These sketches Emma used as motifs in conventionalized designs and patterns for book plates and illustrations. She even created her own designs for applied patch work quilts, of which she made several beautiful ones.

It was her ambition to prepare an illustrated flora of the wild flowers of Colorado using her water colors. However, the printing of colored illustrations was an expensive process and a publisher could not be found who was interested in undertaking the publication of a book that would have a limited circulation.

Mrs. Ervin and her husband were, for several years, active members of the Colorado Mountain Club and were both interested in the preservation of wild flowers. Emma was chairman of the Nature Protection Committee in 1917. She illustrated various articles for the magazine "Trail and Timber-



Emma Armstrong Ervin

line." The themes expressed in the drawings are evidence of her great interest in wild flowers and animal life.

In 1935, her life was saddened by the death of her husband. She now plunged more deeply into her art work painting landscapes in oils, especially aspen scenes, and still life compositions. Her failing health forced her to give up her beloved cabin in Estes Park and she settled in her Denver home where she had several other woman shows of her paintings, exhibiting a wide range of subjects.

Previous to her illness she was working on a series of pen and ink designs of wild flowers for publication in cooperation with Enos Mills who was to prepare the text. But this effort was never completed.

On May 6, 1957, Emma died after a prolonged illness. She had no children and all her brothers and sisters have passed away with the exception of one sister, Mrs. Eva Armstrong Thomas of Berkeley, California.

Those who knew Emma and watched the collection of wild flower studies grow were greatly impressed by her skill, patience, and devotion to her work. Her landscapes, especially those with aspens in fall color were very appealing. In her later years when she could no longer go to the mountains she turned to still life compositions. Her paintings grace many homes in Denver and in places outside of Denver.

A few years before her death her collection of water colors of Colorado flowers was brought to the attention of the Colorado Forestry and Horticulture Association by Mrs. Henry F. Brooks. Through the generosity of Mrs. John Evans the collection was purchased for the Association.

Then for several years the collection was almost forgotten since there was no practical way of displaying the paintings. But recently the curiosity of certain Garden Club members, who were interested in saving our vanishing wild flowers, managed to get the collection out of storage. Thus began the desire to protect the paintings and make them available to all who are interested in studying the wild flowers of Colorado.

The paintings have been carefully mounted in plastic sleeves, 14" x 17", in size. The sleeves are bound in five

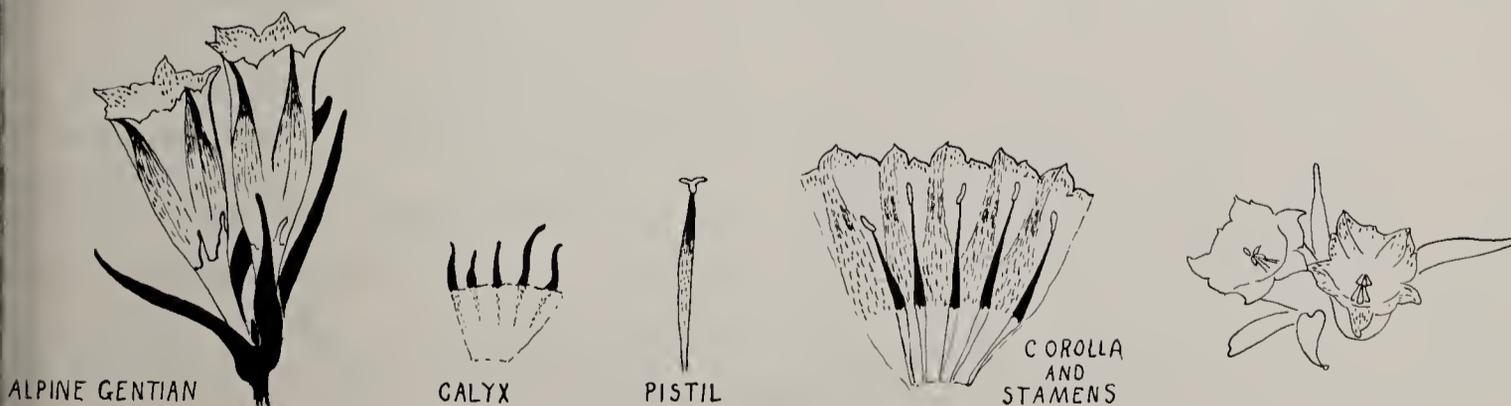
volumes titled Colorado Wild Flowers. These volumes will be on display in the library of Botanic Gardens House. Through the courtesy of Mrs. Enos Mills the pen and ink sketches for the unfinished book are made available and will be shown.

We are indebted for the preparation of these volumes to several persons who have devoted much time, money, and energy to the project. Mrs. Alexander L. Barbour donated the album covers and the plastic sleeves. Mrs. Marjorie Shepherd acted as general supervisor.

It took many hours of patient work to mount the paintings, to arrange and catalog them, and to type the indexes. The work was done by Mrs. Jackson C. Thode, ably assisted by Mrs. Russell Cookson and supplemented by the volunteer help of all members of the Morning Belles Garden Club.

The information given by Dr. William A. Weber, Department of Botany, University of Colorado has been very helpful in completing the names on the specimens.

For the information used in this brief biography, the writer is greatly indebted to Mrs. Eva Armstrong Thomas, Mrs. Enos Mills, Miss Elsie E. Hayes and Mr. Charles E. Hanscom, who graciously responded to all inquiries.



“In the forest the processes of decay and the processes of growth always balance one another . . . the forest is the perfect sanitarium, the supreme chemist and economist.”—Sir Albert Howard.

PLANT PORTRAITS

GEORGE W. KELLY



Hibiscus syriacus 'Bluebird'



Cornus racemosa

SHRUBALTHEA

The Shrubalthea, Althea or Rose-of-Sharon (*Hibiscus syriacus*), has been a favorite in southern gardens for many years, but because it is on the borderline as to hardiness in our "Sunshine States" it has never been used as it should be here. Its hollyhock-like flowers are among the largest among the shrubs and come in a variety of colors as well as single and double. Several like "Bluebird", "Hamabo" and "Coelestis" are very attractive.

Most half-hardy shrubs in this area do better on the east side of a house where they are protected from the drying winter sun and the severe winter winds. This shrub, however, seems to prefer a position on the south where it gets full sun but little wind. Even in the most favorable location Shrubaltheas may live ten years or only two. Because of their habit of blooming in fall when few other shrubs are in bloom, they are very much worthwhile trying.

DOGWOOD

Everyone from the East, South or Pacific West knows and loves the Flowering Dogwood. But this plant is not hardy here, so a few have learned the many good qualities of our native Redtwig Dogwood and plant it. Only a very few have discovered the usefulness and beauty of the Gray Dogwood, *Cornus racemosa* (*paniculata*). Because the flowers are small, it is not known for its bloom and the fruit being an inconspicuous pearl-color does not make the shrub known for this quality. The flowers are numerous, however, as well as the fruits, and the whole effect of the plant is one of neatness and compactness. It is rather taller than broad and gets to be 8 to 10 feet tall in time.

One must see this nice shrub to appreciate it. Gray Dogwood is worthy of more extensive planting in this High Plains — Rocky Mountain region.

STATE PARKS DIRECTOR H. LATHROP DIES

ARNOLD E. PERRETIN

Harold W. Lathrop, State Parks and Recreation Director, died Tuesday, August 1st. He was born in Lancaster, Wisconsin, June 21, 1901.



Since 1924 he had devoted himself to parks development work. For 12 years he was director of State Parks in Minnesota. In 1946 he became field representative for the National Recreation Association with headquarters in Wheat Ridge, Colorado.

Following the creation of the State Parks and Recreation Board in 1957, Lathrop became its first director. He supervised a comprehensive survey for a state-wide Parks and Recreation development plan.

Prior to Harold's appointment as director, Colorado was the only state in the union without a state park. Now, within 3 years, a number of additional roadside parks have been developed. Cherry Creek Reservoir is rapidly being developed into a state park. Antero and Eleven Mile Reservoirs are being developed and acreages are being purchased throughout the state for future state parks.

Horticulture has lost an efficient and enthusiastic worker who had the confidence of the members of both houses

of the state legislature. The work he has started will develop into a state park system of which Colorado can be proud. Such a system will be a worthy monument to Harold Lathrop.

We are continually experimenting with plants suitable for ROCK GARDENS. We have a large selection of the old-timers, new, unusual and native plants. Many are in pots ready to set out at any time. We also have mature plants in our own rock garden to show you what they may eventually look like.

COTTONWOOD GARDEN SHOP

George and Sue Kelly

4849 So. Santa Fe Drive, Littleton

PY 4-0430

DENVER

ROSE SHOW

DRAWS 7,200



At 1:30 p.m., June 25, in the First National Bank lobby, Mrs. Dick Batteredton, wife of Denver's mayor, cut the ribbon opening the 13th annual show sponsored by the Denver Rose Society. When the doors closed four hours later, the tally of visitors was 7,200. Hundreds were turned away.

Entries in specimen classes totaled a record-breaking 846. Arrangements also set a record, 102.

In attendance, number of entries, quality of roses, and in the spacious setting provided by the bank, this was one of the most successful shows ever staged by the Denver Rose Society.

Show Chairman was Henry J. Conrad; co-chairman, Clyde E. Learned. Mrs. Ray E. Turnure was chairman of

arrangements; Mrs. C. B. Strickler, chairman of niches; Ray E. Turnure, chairman of judges.

TROPHIES AND AWARDS

SPECIMEN DIVISION

Queen of the Show, Confidence, Herb King.

Best Group of Three, Crimson Glory, Mr. and Mrs. L. G. Stuart.

2nd Best Group of Three, Karl Herbs, Herb King.

Best Floribunda, Fashion, Mr. and Mrs. M. E. Nixon.

Best Grandiflora, Queen Elizabeth, Herb King.

2nd Best Grandiflora, Pink Parfait, Herb Gundell.

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1 Best Hybrid Tea, White Knight, Mr. and Mrs. Clarence Jones.
 2 Best Group of Three, The Doctor, Mr. and Mrs. Clarence Jones.
 1 Best Floribunda, Vogue, Laura Fisher.
 1st Peace, Mr. and Mrs. L. G. Stuart.
 1st Hybrid Tea, (5 to 11 petals), Dainty Bess, Mr. and Mrs. Clarence Jones.
 1st Climber, Golden Showers, Casey O'Donnell.
 1st Miniature, Dwarf King, Bertha McCullough.
 1st Recognition Bowl, Mr. and Mrs. L. G. Stuart.
 1st Sheepstakes Bowl, Mr. and Mrs. L. G. Stuart.

Gold Medal Certificates

Queen of Show, Confidence, Herb King.
 Best Group of Three, Crimson Glory, Mr. and Mrs. L. G. Stuart.

Silver Medal Certificates

Second Best Single, White Knight, Mr. and Mrs. Clarence Jones.
 Best Floribunda, Fashion, Mr. and Mrs. M. E. Nixon.

Bronze Medal Certificates

Second Best Group of Three, The Doctor, Mr. and Mrs. Clarence Jones.
 Second Best Floribunda, Vogue, Laura Fisher.

MORGRO FERTILIZER

The perfect all-around garden fertilizer. Morgro is truly a complete plant food, giving your garden all the mineral elements essential to plant growth. Morgro is 25% available plant food containing 6% nitrogen, 10% phosphate, 4% potash, plus 5% iron sulphate and small amounts of available boron, copper, calcium, manganese, magnesium, sulphur, zinc. Morgro is made particularly for intermountain soils and produces a richer, greener growth that is easily seen in comparison to areas not fed with Morgro. The first choice of western gardeners and nurserymen.

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 Spanish Missions, Herb Gundell.
 Best Beginner, Mrs. Pat Gallavan.
 Best Miniature, Mrs. Wm. T. Eccles.

Certificates:

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 Bronze, Herb Gundell.

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TREE SURGEON

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Custom Spraying
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Martin Schafer

1892-1961

Martin Schafer, who died suddenly of a heart attack on July 31st, at the age of 69, was almost a native of Colorado, having come to the state from Woodside, Long Island, 44 years ago. Seven years after moving here, he married Nora Marie Lee, who died in 1958. He had one daughter, Irene, now Mrs. George Brotzman of Denver.

From boyhood, Martin was interested in growing plants and must have inherited a green thumb. Those who have known him in horticulture circles here, know that he never lost his enthusiasm or his touch.

People in the Montclair District will remember Martin as the one who nurtured and protected their parks and parkways. He always called them "his" people and "his" people they were. They came to him with their lawn problems, their tree and flower problems and he usually had the answer. If he didn't, he could find it in his own horticulture library — as complete a home library as any college professor can boast. If the answer wasn't there, he'd contact Fort Collins.

Martin worked with the Denver Parks Dept. for nearly 30 years and was Supt. of the Montclair District. He personally set out most of the beautiful blue spruce and evergreen specimens we enjoy when we drive 6th, 17th and Monaco Pkwy's. In amongst them, he had experimental trees and shrubs which he donated and cared for. Mar-



tin was a member of the Men's Garden Club of Denver and made real contributions in the culture of chrysanthemums, glads, peonies and phlox. Lilies were one of his favorites and he was always one of the first to try the new varieties. He was an active member of the Advisory Council of the Denver 4-H Clubs. Children and adults alike will remember the long patient hours he spent with young "victory" gardeners and with exhibitors at the 4-H Fairs.

The Girl Scouts had a flower bed on 17th Ave. Pkwy. which he helped them furnish and plant. Another troop planted tulips last fall, with his help and, under his direction, they kept records of the bulbs from the time they broke through the ground until they went to seed.

These are but a few of the areas which Martin will be missed. Numerous are the living memorials to his life

Ed Wallace

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READ THOSE PESTICIDE LABELS

ROBERT I. SULLIVAN¹

Public attention has been increasingly directed to agricultural chemicals because of their more extensive use in recent years. This includes the use of chemical controls for household and ornamental plant pests as well.

The importance of chemical controls for pests is apparent from the increasing levels of agricultural production, and from the contributions to the public health through control of flies, mosquitoes, rodents and other pests.

All users of pesticides are urged to read and follow the manufacturer's label directions. A tremendous amount of research has gone into the preparation of directions to assure safe and proper use without hazard.

The Colorado Pesticide Act requires that the labeling for all Insecticides, Fungicides, Rodenticides, Herbicides, Nematocides, Desiccants, Defoliants and Growth Regulators must be submitted to the Colorado Department of Agriculture for approval and registration, prior to sale or offering for sale, and such registrations shall be renewed annually.

The purchaser of any pesticide product has the assurance that all materials have been screened at the time of registration to ascertain that **IF USED ACCORDING TO THE DIRECTIONS ON THE LABEL:**

1. There is no danger of poisoning to the user.
2. Recommended application rates and concentrations are accurate.
3. The claims for pests to be controlled are valid, and
4. No toxic residue will remain that would prohibit the sale, or cause condemnation of harvested crops.

The individual home gardener may also be assured that no deleterious pesticide residue will remain when the label directions have been followed.

Generally speaking, the Colorado Pesticide Act was designed to protect the public by requiring that pesticide chemicals be labeled with adequate directions and precautionary statements, which, when followed, will prevent the contamination of foods with harmful residues. It is aimed at instructing the user in the manner in which the product may be effectively and safely used so as to encompass safety to beneficial plants and animals to which the materials are applied, safety to wild life, to persons applying the materials or frequenting the treated areas and safety to those consuming foods treated with the particular chemical.

¹ From the Pesticide Section, Division of Plant Industry, Department of Agriculture, State of Colorado.

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The following suggestions for the handling of pesticides will reduce a hazards.

1. READ AND FOLLOW THE DIRECTIONS ON THE MANUFACTURERS' LABELS.
2. Use the type of equipment recommended for handling a specific pesticide.
3. Wash your hands and face before eating or smoking.
4. Always have good ventilation when working in an enclosed area.
5. Should the clothing become contaminated from spillage, immediately wash with soap and water, and change clothing.
6. ALL EMPTY CONTAINERS SHOULD BE DISCARDED IN SUCH A MANNER THAT THERE IS NO POSSIBILITY OF CHILDREN PLAYING WITH THEM.

There is no case on record of anyone who has suffered any adverse effects from the use of pesticide products when the directions on the label were read and followed. READ AND FOLLOW LABEL INSTRUCTIONS.

The weedkillers are generally divided into the selective and non-selective. The selective weedkillers are used in the control of most broad-leafed weeds and are available in the amine and ester forms.

There is relatively little danger from the possibility of poisoning from the 2,4-D weedkillers, but extreme caution should be taken in applying these materials so as to avoid the possibility of damage to adjacent susceptible plants from wind drift. Even the vapors of the 2,4-D's, on hot days, may cause damage to adjacent susceptible plants. The possibility of damage is somewhat reduced with the Amines and the low volatile Iso-octyl Esters.

Generally, 2,4-D or 2,4,5-T spraying equipment cannot be satisfactorily cleaned to permit its use, without hazard, for spraying insecticides and fungicides on susceptible plants. This hazard may be somewhat reduced by cleaning 2,4-D contaminated equipment with ammonia. Mixtures of water and ammonia should be allowed to stand for 24 hours in the equipment being cleaned, making certain that all connections, nozzles and other pieces or accessory parts are also cleaned. The unit should then be flushed with water and detergent, and then with clear water, only.



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During the 1961 session of the General Assembly, legislation was enacted (House Bill 271) to require anyone applying insecticides, fungicides or herbicides, commercially, to be licensed by the Colorado Department of Agriculture. The law does not apply to those engaged exclusively in structural pest control work.

Applicants for pesticide application licenses are required to pass a written examination covering the proper uses and handling of pesticides.

Licensing will be on an annual basis, and must be renewed by January 1 of each year.

Require the man you hire to spray your trees or yard to present proof that he is licensed. He must be qualified as a pesticide applicator to be licensed.

SEASONAL SUGGESTIONS

PAT GALLAVAN

Summer is on the wane here in the high plains area. Shorter days and cooler nights signal the approach of Indian Summer and a major change in our gardens. Bright flowers of summer give way to the fall color scheme of yellow, bronze and lavender. This change, like other seasonal changes, should be recorded in your garden note book. Do not leave things to chance, get out and see, then record the shrubs and flowers that make this autumn season so beautiful in our area. Perhaps you can have more color in your garden next fall.

Speaking of planning for next fall, now is the time to plan and plant your beds of spring color. The fall bulbs: tulips, hyacinths, jonquils and others will soon be on the market. If you have planned for them, an early selection will assure you of getting the color combinations you want.

If you want some plants indoors this winter, now is the time to take cuttings of geraniums, begonias, coleus and other tender plants. For successful cuttings all you need is a new shoot 6 to 8 inches long with several leaves. Snip it off and place it in sand or perlite until it roots.

Also, for your indoor gardening pleasure, be sure to collect your dried seed pods for winter arrangements. A Sunday drive in almost any direction will take you by a roadside weed patch that abounds with good material for dried arrangements.

A special problem associated with our cooler nights is mildew. This whitish fungus attacks roses, phlox, zinnias and other plants causing the leaves to curl and damaging flower buds. Spraying with one of the new fungicides, like Phaltan, or actidione P.M. will help bring this disease under control.

A final application of fertilizer can be applied to lawns any time before September 15. A complete fertilizer, one containing nitrogen, phosphorus and potash, is recommended for fall feeding. Fall is an excellent time to sow grass seed, either for patching or for new lawns. Remember, that with new lawns, preparation of the soil is the most important aspect to consider. Use plenty of humus and incorporate it well into the seed bed.

Peonies, poppies and other early flowering perennials can be divided and transplanted. Take care that the peony buds or eyes are not covered by more than 1½ inches of soil.

GARDENING
WITH
COLORADO
WILDINGS VI

RUTH ASHTON NELSON



Fendlera rupicola

OUR RARE OR DIFFICULT SHRUBS

It is true that the shrubs I am going to discuss in this article are rare in gardens. They are not rare in their natural habitats, and perhaps the only reason they seem to be difficult is that some of them grow in the sort of places from which it is almost impossible to transplant them. Now that Harry Swift is growing most of them from seed we may find that they are neither "rare" nor "difficult". All of these species are very beautiful as they occur in the wild and if they can be made to seem at home they will be very valuable in horticulture.

Fendlerbush, *Fendlera rupicola*, is a much branched shrub with narrow leaves an inch or two long and purple-tinged, somewhat square buds which open into pure white four-petaled flowers. Each of the petals is narrowed to a slender base and is slightly fringed around the blade. On the cliffs and in the canyons of our southwest where it often grows on limestone it blooms profusely in late May. I have one shrub of this which is blooming freely for the second season. It should have a very well-drained site and would

probably appreciate a mulch of lime stone chips. If it can be propagated and grown successfully it will be a desirable shrub for our area. This is a member of the saxifrage family. The rest of this group are all members of the rose family.

Cliffrose, *Cowania mexicana*, is another lovely southwestern shrub which is evergreen. I have not grown this but am very enthusiastic over its possibilities after seeing it in flower in its natural setting. Harry Swift has seedlings of it and tells me it bloomed in his nursery the second season from seed. Its inch broad, fragrant flowers are of the wild rose pattern, pale yellow, about the color of *Rosa hugonis* and with deeper yellow stamens clustered about the center. In fruit it has plumed achenes similar to those of Mountain Mahogany. Its small, finely divided, aromatic leaves are dark green above and white-tomentose beneath. This grows naturally on sandstone ledges and cliffs where the old plants sometimes become small trees. It requires plenty of sun and a very well drained soil.

Squaw Apple, *Peraphyllum ramosissimum*, grows naturally in bushy clumps 3 to 6 feet tall, which become covered in late May with clusters of fragrant pink and white blooms somewhat smaller than crab-apple blossoms but otherwise very similar. Its leaves which do not resemble apple leaves are narrow and 1 to 2 inches long, tapering to the base, and often fasciated. The apple-like fruits are small, about half an inch in diameter, yellow with red or brownish cheek and said to be very bitter. I have two specimens growing well in my garden but they have not bloomed yet, so I will try to report on them later.



Peraphyllum ramosissimum
in its native habitat

Antelope-Brush, *Purshia tridentata*, is almost a miniature copy of the Cliffrose. Its fragrant flowers are similar but smaller and its leaves are almost the same in appearance but mostly deciduous. Its achenes do not develop the plumed tails of its larger relative.

It grows throughout the Rockies on dry gravelly banks and about granite boulders. This is another one I have not succeeded in growing. My experience is that it is fussy about being transplanted. Mrs. Marriage succeeded in growing it but found that it soon became "overgrown" under garden conditions. I believe that it is useful in dry situations but that where it is not naturally browsed by animals it should be kept shorn. I have seen it covering

road embankments with a handsome compact growth about 6 or 8 inches tall, where it was obviously much browsed. I am sure it will be valuable when we learn how to use it and put it in the right places.

The last two shrubs in this group differ from most of the others I have

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described in this and the preceding article in that they grow naturally in rich, moist soil.

Mountain Ash, *Sorbus scopulina*, is at home in the high mountains, along streams and on steep rocky banks but where there is humus-rich soil between rocks. It is more shrub-like in growth than the European Mountain Ash which is frequently grown as an ornamental tree in our area. This native species is similar in general appearance with its handsome pinnately compound leaves and clusters of bright orange-red berries. It will tolerate some shade and is valuable for autumn color of both foliage and fruit.

Wahsatch Maple, *Acer grandidentatum*. This is a large shrub or small tree

which is inclined to grow in a shrub form. It belongs to the hard maple group and in the canyons of the Wahsatch Mountains where it is native it puts on a magnificent show of rose-red autumn color. Robert More, Harold D. Roberts and Kathleen Marriage were all very enthusiastic about its horticultural possibilities. There are now a few specimens growing in Denver and in Colorado Springs. It seems slow in starting to make much growth and mine have not yet put on any striking color display but I am hopeful that they will.

Any gardener who makes an effort to obtain and is successful in growing one of this group of shrubs will, in my estimation, have something very much worthwhile.

REPORT ON TERRACE AND GARDEN TOUR

The Garden Club of Denver is happy to report that the Terrace and Garden Tour was a success from every viewpoint. The gardens were all in excellent condition and showed to the very best advantage; the day was perfect for the tour and the response from the public was excellent. The net proceeds amounted to \$2,010.00 which sum is to be used to assist in the development of the Denver Botanic Gardens.

There were approximately 600 visitors, many of them being guests from outside of the state who were delighted at the opportunity to see some of Denver's finest gardens. There was no dearth of enthusiasm at each home for the variety of landscaping plans was wide enough to keep guests' interest sustained for the entire tour. Many people were intrigued by the skillful manner in which the well-planned terrace introduced them into the garden.

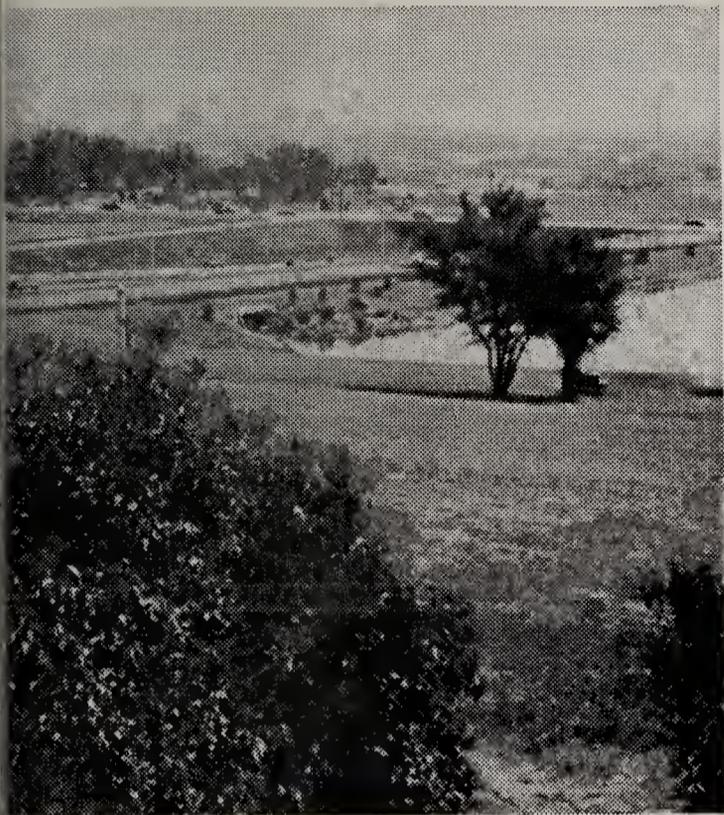
Our hostesses and well-versed gardening experts were kept busy throughout the day identifying many unusual plants and explaining the choice of materials used for background planting and ornamental display. The refreshment tables at the Arneill and Huntzicker gardens provided a welcome oasis for the pilgrims. 230 tickets were sold at the gates indicating that the fine advance publicity paid off rather well.

We wish to thank all who participated in making this event a success. Our special thanks to the hostesses and experts, to the people and companies who helped us to sell tickets, to those who so graciously allowed their gardens and terraces to be shown and to the members of the Terrace and Garden Tour Committee: Mesdames Raymond Sargent, John Mitchell, Kenneth Malo, John Welborn, Brown Cannon, Richard Davis, Willett Moore, Samuel B. Childs, Arthur Rydstrom and B. K. Sweeney, Jr.

Mrs. J. Kiernan Weckbaugh

THE BARNUM PARKWAY

S. R. DEBOER



Barnum Lake
Denver Skyline in Background



Tree Plantings in Barnum Park

On my way to Barnum my little horse who knew all the shortcuts better than I did got stuck in the grounds of Villa Park School. There was a sort of buffalo wallow there and the dirt trail ran through it. The mud reached to the floor boards of my new buggy but after a period of uneasy resting, we got out. This was around 1914.

In this seventh decade of the twentieth century I suppose there are no people in Denver who can make sense out of my title, so I hasten to say there is no Barnum Parkway and you may substitute Barnum Park if you wish. My story, however, begins with a parkway. At one time it was a very live issue in Denver. Every park administration had been severely criticized for concentrating on east Denver. Cheesman Park, City Park and all the parkways were pointed at to show the neglect of west Denver. Early write-ups referred to the Montclair park roads as Kansas City Parkways because they were far out from the city's built up area.

We had acquired two blocks of land on Hooker and West Fifth Avenue on a bare hilltop overlook point similar to Inspiration Point but with a view to the city. We had planted some trees there but the whole of Barnum was an isolated spot. P. T. Barnum, of circus fame, had laid out a large subdivision but outside of a circuitous street car line it had practically no connection with the city and the Barnum clay was terrible. The Eighth Avenue viaduct and bridge did not come until 15 years later. Mayor Ben T. Stapleton and Manager Charles D. Vail, two men who have contributed so much to the beauty of Denver, were very conscious of the plight of the people of Barnum.

As early as 1923 we had a proposed extension of the park area to include the Wier Gulch bottom with a lake and large park and following the policy of that period we felt we could connect the park with Sloans Lake Park on one side and with the park land we had on Alameda Avenue and the Platte River on the other side. We went north

of Sloans Lake to Berkeley and had in mind a connection to the East Denver parkways.

The Barnum Parkway was a scenic one. It followed over the bluffs to the high point in the park and over Dry Gulch to Colfax Avenue. The survey was run by Louis Douglass who later became Chief Dam Engineer of Reclamation and for whom the Barnum Lake Dam was child's play.

The north Denver Park District had to vote on the whole program of land acquisition, including an extension of North Speer Boulevard to Berkeley and we had many meetings. My job usually was to explain the plan and Mr. Vail carried on from there. The meeting in Barnum was interesting. A park policeman by the name of Abe drove us out there. I asked him how come he was there. "Oh," he said, "The boss thought you might need some protection". The meeting was a very quiet one compared with later ones in north Denver.

We were defeated and the Barnum Parkway died unborn. The park idea, however, stuck and in the City Plan of 1929 it was still there as well as the road connection to Sloans Lake, but much subdued. The Speer extension remained on the plan and in the first regional plan it continued to Arvada and Coal Creek Canyon. My beautiful scenic Barnum line, on top of a bluff overlooking the city, disappeared.

Committees from Barnum waited on the Mayor promoting the Barnum Park and they even erected a small fountain. Times had changed. The post War peak had changed to a period of low economy. Denver real estate had been cheap since the nineties, now it dropped still lower. Tremendous areas had been platted into 25 foot lots. The whole area of open prairies from City Park to Fitzsimons, from Harmon to Fairmount and to the University from Federal to Sheridan had been platted. When we caught our breath in 1936 the City Planning Board (I was their planner) mapped the lots on which people had quit paying taxes . . . tax delinquent lots, in other words. There were nearly 40,000 of them.

"You cannot show this map to anyone," Mayor Stapleton said. "It will create a panic." I did not but we laid our park proposals on top of the tax delinquent map and lo and behold there was Barnum Park, Ruby Hill and many others. At the Mayor's orders these lots were not offered for tax sale. There were no buyers anyway. Charlie Pitschke, one time building inspector, bought a lot of them but could not hold them. Looking back, the depressed years did a lot of good, they sobered people. Many lost in the stock market but a great deal of it had been speculation on margin buying.

The taxes on the delinquent properties had to be paid and under Park

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L. David Engholm, *Horticulturist*

anager, Leroy Hinman, we had enough land to make new plans for the park. In the meantime the new U. S. Co. 6 highway was built and the Highway Department built a dam in Wier Gulch which made the Barnum Lake possible. In this connection I would like to mention Dan Ormsbee whose passion and love for Denver parks drew the design for a 6th Avenue underpass under Federal Boulevard which included the design for a dam in Wier Gulch. Under Dave Abbott, Director, and Bill Greim, Manager, Barnum Park finally became a reality. From the time that I was stuck in the mud at Villa Park School until today must have been 45 years, nearly one-half of Denver's total age!

We now have Barnum Park. Let us look at the beautiful irregular shoreline of the lake much enhanced by attractive grading and planting by the

two "Eds", Wallace and Johnson, park landscape architects. The park has a swimming pool, ballgrounds, small tot's playgrounds on various levels, a formal lawn and still the beautiful overlook point. It has about all you could wish for in recreation, the regular supervised play facilities and the informal relaxing spots for picnicking, for fishing, for hiking and what not. The annual "Show Wagon" is a big factor here. You know, of course, that this is one of "Curly" Schlupp's contributions to America's recreation. Be sure and visit Barnum Park.

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Pete

Ponders

Dear Pete,

Each spring our tulips bloom early and are ruined by spring snowstorms. Can I do something to delay their bloom?

Missa Storm

Dear Missie,

Oh, to invent a weather moderator! These suggestions might help. Select late blooming varieties as the Darwins or May-flowering bulbs. Plants will bloom earlier if on the south or west. Nearness to brick or rock walls which retain heat will contribute to early blossoming. Depth of planting bulbs is our best control. In eastern U.S.A. where winter is winter and spring comes to stay, bulbs are planted 6 to 8 inches deep. Depending on soil plant bulbs at least 12 inches deep here; in fact, in very sandy soil tulips will be happy at 18 inches.

A novice gardener questioned Mrs. Geo. Garrey, bulb enthusiast, how deep should he plant 5,000 tulips. Her sage reply, "You must dig just one mile."

Dear Pete,

Some friends offered lilacs for planting in our shrubless yard. Must we wait until spring to move them?

Lilac Yenny



DIG ONE MILE

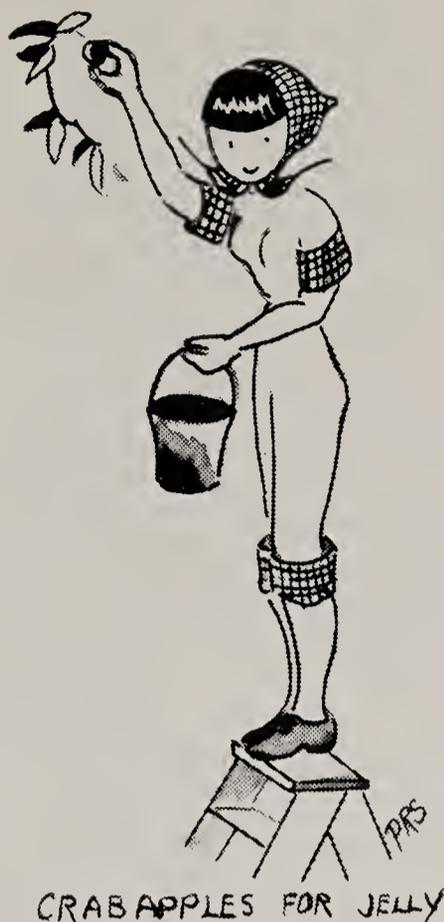


TRANSPLANT LILACS

Dear Yen,

No, lilacs are one of the few shrubs which prefer fall planting here. Doubting George Kelly, who rightly questions most teachings from eastern gardeners, has found repeatedly that lilacs welcome movers soon after shedding their leaves.

? ? ?



Dear Pete,

Do apples from Hopa crab make good jelly?

Hopaful

Dear Hopa,

Nopa! They make jelly but not good. The Grosbeaks on their north-bound flight usually plan a week's topper here in spring just to munch seeds from the Hopa crab.

Dolgo, which has white flowers, bears brilliant red fruit delicious for jelly and pickles.

NATION'S LANDSCAPE ARCHITECTS MEET IN COLORADO

For the first time in history the American Society of Landscape Architects held its Annual meeting in the land of "cowboys and Indians". The Rocky Mountain Chapter, consisting of some thirty members, (did you know there were so many landscape architects in our region?) acted as hosts at the Harvest House Hotel in Boulder. Meetings were from July 10 to 12.

"Vacation in Colorado" was the theme and from the excellent response in numbers from the society members and their families, the convention was the BEST and will be long remembered.

Nationally known individuals from the design professions participated in the meetings, such as:

Professor *Patrick Horsbrugh* of the University of Nebraska and University of London, who did work on the Festival of Britain, London Town Planning and the federal capitals of Pakistan and Burma.

Professor *Robert B. Mitchell*, Director of the Institute of Urban Studies, University of Pennsylvania.

Chester C. Brown, Chief Recreation Resources Planning of the National Parks Service.

Douglas Baylis, A.S.L.A. California, and *John Ormsbee Simonds* A.S.L.A. Pittsburgh, Penn.

Dr. *A. C. Hildreth*, Director Denver Botanic Gardens, *James M. Hunter*, Architect, Boulder, and Dr. *Richard Beidleman*, Director National Science Foundation Programs, Colorado College.

Timely topics, important to landscape architects and members of design professions, were discussed mainly in panels of experts. Among them were

Design and Climate, Landscape Architecture and the Planning Arts, Science Influencing Design, Art or Planning in Design, Design in Public Office, Dream and Reality.

Combining business with pleasure, many wives and families accompanied their husbands to the convention.

An excellent ladies' program was planned by Mrs. Ed Wallace, assisted by chapter wives, and President Julia Jane Silverstein. The women assisted as hostesses, greeting the arrivals, answering questions and providing the "Western charm of the Rockies".

Ladies' programs included a "Get Acquainted Coffee Bonsai". The "Bonsai" was presented by George Fukuma at pool side.

Naturally a shopping tour was planned in Downtown Denver, so the ladies could buy all those little items on their lists for the folks back home; it was followed by luncheon at the Petroleum Club and a tour of the Denver Area conducted by Mrs. Louisa Ward Arps.

The latter also had written "Botanizing with Edwin James" (July number Green Thumb), which acted as a guide for the extensive Tuesday Field Trip for all.

The Field Trip included well over 150 people, in nine buses. It was a tour via Denver to the Air Force Academy (with inspection), the Garden of the Gods and ending with a western chuck wagon dinner at the "Flying W" Ranch.

Even though the weather was a little on the wet side (under statement) this didn't dampen anyone's spirits and enthusiasm. It was pronounced "tops" by all participants. At least as good was the Thursday Field Trip to Rocky Mountain National Park, under guidance of Dr. Hildreth and Dr. Moras Shubert.

COLORFUL OUTDOOR EXHIBIT

Exhibits were displayed by prominent national manufacturers associated with landscape development. A carnival spirit was provided with colorful plastic panels, outdoor exhibit spaces and tent, resplendent with music and congenial conversation.

The center of attraction for most people was the creative native planting and flagstone designs by the local landscape architects with materials provided by local Colorado nurseries and Colorado Stone Company.

Many commendations and thanks go to the local chapter members and associated professions. Without everyone's help our successful convention could not have taken place in "Colorful Colorado". Sam L. Huddleston, as Trustee from the Rocky Mountain Chapter was able to procure enthusiastic cooperation from the officers and directors of the National A.S.L.A.

Preliminary foundations had been laid by the Spring Issue of "Landscape Architecture" under guidance of M. Walter Pesman, Special Editor, and Professor Stanley White, formerly of Univ. of Illinois, now in Denver. It showed what the members could expect upon coming to the Arid Land of Sunshine.

Around three hundred and fifty people attended the meeting.

Gerald F. Kessler

Have you renewed your membership in the Denver Botanic Gardens?
Don't miss an issue of The Green Thumb



Queen Ann Guest Cottage, Los Angeles State and County Arboretum

LOS ANGELES STATE & COUNTY ARBORETUM

DR. WILLIAM S. STEWART, *Director*

I.

In 1948 Los Angeles County was the only major metropolitan area in the United States that lacked an arboretum or botanic garden. The Southern California Horticultural Institute, one of the oldest horticultural organizations in the area, recognized this need and set up an active arboretum committee. Thorough investigation of areas around Los Angeles resulted in selecting the site of the present Arboretum. Climatically speaking, it is in one of the more favored areas in the nation. This site is located on the northern edge of the San Gabriel Valley, just east of Pasadena, in the beautiful city of Arcadia, and a scant twenty-five minutes from downtown Los Angeles. Then it became necessary to convince State and County officials of the value of an arboretum to the community; and, in that same year, it was purchased jointly by the State and County just in time to save it from subdivision.

One hundred and twenty-seven acres were acquired in this purchase. This site contains one of the few natural bodies of water in Southern California, a spring-fed lagoon covering about five and one-half acres of land. In addition, it had within its boundaries three buildings of great historical significance.

The area had once been the heart of the famous Rancho Santa Anita, formerly part of the Mission San Gabriel lands. The first private owners were

Hugo Reid, who was called the Scotch paisano, and his Indian wife, Donna Victoria, a woman of charm and culture, to whom the Mission fathers had given the land in appreciation of her housekeeping services at the Mission. Aside from the wickiups of the Gabrielino Indians, they erected in 1839 the first building in the area, a three room adobe house and an enclosed courtyard with high adobe walls. Inside the courtyard were cooking facilities, a garden and an outdoor eating area under a reed-covered patio structure called a ramada.

The Rancho changed owners several times from the Reids, who did not obtain title to the property until 1841, up to 1875, when the fabulous E. J. "Lucky" Baldwin purchased the land. Mr. Baldwin, with his great wealth from the silver mines, preferred to live in the remodeled adobe, but he added a guest house, the "Queen Anne Cottage", built in the gaudy design of the Victorian era, and a coach barn equally pretentious. He also had extended his holding to more than sixty thousand acres, which, at the time of his death in 1907, was divided among his heirs. By 1947, most of this acreage had been sold and subdivided, leaving only the one large parcel, for which subdivision plans had already been drawn.

This historical area provides a unique opportunity to show two important phases of California history — the simple agrarian life of the "Hide and Tallow" era of the early 1800's, and the lavish mode of living which followed the discovery of gold in 1849. Fortunately, following the death of Mr. Baldwin in 1907, the ornate appointments of the Queen Anne Cottage, such as stained glass windows from England, crystal chandeliers and marble fireplaces, had been crated and stored in the coach barn. Forty years later, these treasures were carefully restored in the Cottage which was then authentically refurnished. Because the Hugo Reid Adobe had been remodeled by successive owners, it was completely rebuilt by the State of California Department of Beaches and Parks after a great amount of preliminary research involving archeological excavations and perusal of existing archives. After this extensive work was accomplished, it too was carefully and authentically refurnished with the artifacts of the era. The entire historical area is located on the south side of the lagoon in a truly romantic setting.

The parklike area between the Queen Anne Cottage and the coach barn is one of the favorite haunts of the famous Baldwin peacocks. A few pairs imported by Mr. Baldwin in the late 80's from India, were permitted to run wild, and, through the years, increased to a flock of a hundred and fifty birds.

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VIEW OF
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IN
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arboretums in the world. In 1948, the California Arboretum Foundation, Inc., a non-profit corporation, was formed to administer the Arboretum for the County. The Foundation Board of Trustees was composed originally of the members of the Southern California Horticultural Institute Arboretum Committee, augmented by other public spirited citizens with wide horticultural and historical interests. This Board formulated the master plan and began development of the grounds. It also set up a list of nine objectives which is the guide for development of the Arboretum. Under these objectives, the Arboretum is to serve as:

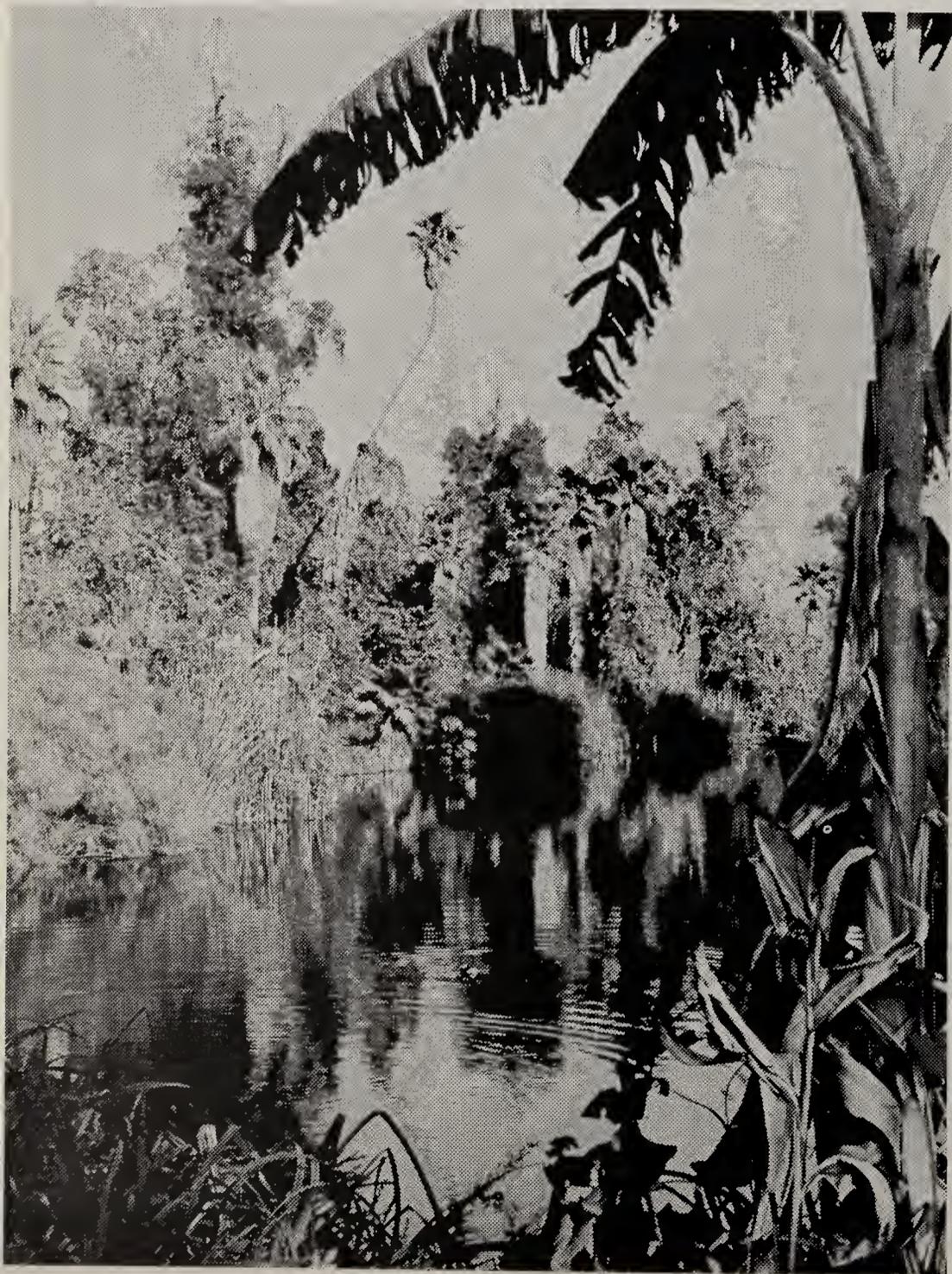
1. A horticultural center for Southern California.
2. A center for the introduction, testing and improvement of plants adaptable to Southern California.
3. A gardening school for training gardeners, garden superintendents, propagators and other skilled personnel.
4. A center of research and scientific study, working in collaboration with educational institutions and with Federal, State and County departments of agriculture.
5. An information center maintaining a complete catalogue of all plants cultivated in Southern California, where specimens can be readily identified, and practical advice given on planting, propagation and cultivation.

6. A library and herbarium.
7. A publication center for bulletins, books and pamphlets of horticultural, botanical and historical interest.
8. A preserve of early California architecture and authentic historical gardens.
9. A bird sanctuary.

The Foundation is also responsible for the fine orchid collections housed in four greenhouses. Foundation members take a keen interest in the Arboretum and donations of books, botanical prints, plants and equipment for research are received from this source.

In 1953, the interest and support of a progressive County Board of Supervisors was demonstrated when it voted to create a County Department of Arboreta and Botanic Gardens to assume management of the Arboretum, leaving the Foundation free to devote its energies to those activities of benefit to the Arboretum which could not be carried on with tax funds. The rapid progress being made in development is largely the result of this enlightened decision.

A good master plan is a prerequisite for a successful arboretum. In developing the plan for the Los Angeles State and County Arboretum, it was decided to use geographical and ecological groupings rather than the plant family groupings commonly used in older arboreta. The four major areas of the Arboretum are devoted to plantings from the four areas of the world which



JUNGLE
AREA
AND
LAGOON

have a climate similar to this section of Southern California — South Africa, the Mediterranean, Australia, and the Latin Americas, Mexico, Central America and South America.

The plantings in general are about fifty percent completed. The Australian Section already contains a collection of more than three hundred species and varieties of Eucalyptus and approximately two hundred species of Acacia, to mention two of the major groups. In the South African Section, the meadow of composites attracts many visitors and the Aloe collection is outstanding. The Latin American and Mediterranean Sections have lagged due to storm drain construction and an elaborate new entryway now under construction. (One of the features of the new entryway will be a tropical water lily pool 250 feet by 20 feet, with automatic temperature controls to permit planting of the Victoria Regina Lilies with their large lily pads.)

In addition to the above mentioned sections, there are special gardens and display areas. The Oriental Section contains those plants from all sections of the Orient which will grow here. The Herb Garden is one of the largest in the Country — its fast development being largely due to the active interest and support of the Southern California Unit of the Herb Society of America. A Jungle Area, located on the north side of the lagoon, is a major attraction for young and old. In it many of the scenes for the Tarzan and other jungle movies have been filmed. Adjacent to the jungle is the Palm and Bamboo section which contains over sixty kinds of bamboo and over forty species of palms.

On Tallac Knoll, a small hill in the southwest corner of the Arboretum, is an Economic Plant Collection, which at present, includes twenty-one varieties of avocados being tested on varieties of understock grafts, members of the citrus family growing on dwarfing root stock, and numerous fruit trees, such as apples, apricots, cherimoya, cherries, peaches, pears and sapote, also for various testing purposes. The fruit trees permit giving fruit tree pruning demonstrations as was done last February. Up the hill from the economic plantings are collections of flowering trees and one of the finest collections of ornamental figs in the United States. On top of the knoll is a small amphitheater in which grows a Tropical Garden of plants which are frost tender even in this area. Orchard heaters are provided here for winter protection. Immediately adjacent to the Tropical Garden is the Biblical Garden for the plants mentioned in the Bible. At the base of the hill is a new addition, a garden of old fashioned roses. Amongst beautifully designed pergolas are planted 292 rose bushes, part of them predating the year of 1839, and the remainder from 1839 to 1900. Close by are three acres of the Annual and Perennial Display Gardens which are very popular. This garden contains the largest collection of day-lilies on the west coast, and the changing displays of the annuals from cool weather to warm weather types continually draw expressions of delight from the visitors.

The Propagation Center is located in the northeastern extremity of the grounds. Two large greenhouses, each 34 feet by 100 feet, are electronically controlled for forced air heat and humidity, and are of aluminum construction. These are for propagating and research projects. In addition, there is a well equipped plant records office with label making equipment, seed cleaning equipment, and ample room for files and storage. Complete records have been maintained on all plant material and seed received since the first seed was planted in 1949. 31,000 accessions of seeds, plants and bulbs have been recorded so far.

The centrally located Administration Building, occupied in November 1956, contains executive offices and a small Seminar room. Its Library Wing completed in June, 1959, contains, in addition to the library, the herbarium which is still small, listing 4,000 specimens, but coming along rapidly. In the lower level of this wing is a large lecture hall which can be divided, if need be into four lecture rooms by the use of folding partitions. The library, itself, was started in 1957 with 5,000 bound volumes and 10,000 pamphlets. At the end of January, 1961, the records show 8,565 bound volumes and 17,900 pamphlets the latter being recorded like the books in order to keep accurate account of withdrawals. A modern service building contains up-to-date facilities for fertilizer and tool storage as well as special screened-compost bins and a large soil mixing area, in addition to a garage and shop.

The Gatehouse, completed in 1956, with adequate turnstiles, enabled the Arboretum to be opened to the public on a seven-day-a-week basis. Attendance has been increasing at such a constant rate that, with a count of 385,804 for 1960, it can be assumed the count for 1961 should run well over 400,000. Jeep trains, furnished and maintained by the California Arboretum Foundation, Inc., conducted by trained guides operate on a half hour schedule every day from 10:30 A.M. to 4:00 P.M. Mornings of every school day are active with many school field trips which are handled on a reservation basis and conducted by skilled personnel.

Editor's Note — In the next issue of *The Green Thumb*, Part II of The Los Angeles State and County Arboretum article will present the educational facilities available at the arboretum.

GENEROUS GIFT TO BOTANIC GARDENS

KATHRYN KALMBACH

Two thousand specimens of correctly-labeled and well-pressed plants represent a large amount of dedicated work.

The Denver Botanic Gardens received this generous gift from Dr. John Hartwell's collections in Colorado Springs.

Of special interest in this addition to the herbarium are Oaks, Willows and—yes—Weeds. So many people disdain weeds in their collecting that little is known about them by the average person.

Dr. John Hartwell, (1878-1957), a well-known surgeon in Colorado Springs, through his devoted interest in plants, became also one of Colorado's outstanding botanists. His knowledge and interest were appreciated highly by his many scientific friends.

Meetings of the Denver Botany Club were frequently attended by him he was always able to contribute something of interest.

Dr. C. William Penland, botanist at Colorado College, relates an interesting episode in Dr. Hartwell's career. A grateful patient had presented Dr. Hartwell with a fine dissecting microscope. When Dr. Penland showed him how to study the parts of a plant with the aid of this microscope, Dr. Hartwell was so delighted he became an avid collector of plant specimens, an interest maintained with undiminished enthusiasm throughout all his remaining years. Even after his crippling strokes he was able to use his beloved microscope with some clever clamps and aids which he invented.



Dr. Hartwell at work on his herbarium specimens

Dr. Hartwell was a graduate of Yale and of Harvard Medical School. His early life was spent in the East, where, in 1914, he married Mariam Gile, whose father was a Professor at Colorado College. The parents of Doctor and Mrs. Hartwell were long-time friends. The mothers were school mates and frequent visitors to Colorado.

In 1917 Dr. Hartwell enlisted in the Army and was stationed at Fort Riley, Kansas, until the end of World War I in the following year.

During his later years he took a course in mycology with Dr. Penland, as he was much interested in the study of molds in the medical field.

Whoever uses the Botanic Gardens Herbarium in the future will be grateful to Dr. Hartwell for the painstaking work he put into his collecting, enriching all plant lovers. We owe him and Mrs. Hartwell much gratitude for the gift.

New National Monuments and National Parks are being considered now. Read about some of them in the next issue of *The Green Thumb*.

Scoops by Scott

MRS. JOHN SCOTT

Gardening is an around-the-calendar project, with perhaps even more activity in the fall than in the spring. Let's begin with bulbs. Everyone expects bulb planting to dominate garden work during autumn months. There are the newer varieties of the old faithfuls such as tulips, daffodils and lilies.

Various kinds of flowering onion (*Allium*) are sweeping the gardenside. Everybody's got 'em or gettin' 'em — *tuberosum*, white; *moly*, yellow; *stellatum*, pink; *caeruleum*, blue; *flavum*, yellow; *senescena glaucum*, lavender and *schneeparisum*, rose-purple. The bloom is sweetly scented. The foliage and stems, crushed, have a slight onion scent. They are long-lasting as cut flowers, seemingly unattractive to the bugs and have interesting seed heads for winter bouquet.

If you don't already have these bulbs in your garden, try a few of them. The Brodiaeas include the floral firecracker plant, *Brodiaea coccinea*. The *Calochortus* answers to Mariposa Tulips, which may need to be planted annually. Camassias have spires of starry flowers recommended for cutting. *Chionodoxa* or Glory-of-the-snow, will increase and improve with the year. *Colchicum*, sometimes called Bare Dames, have been highly advertised as novelty.

With bulbs that naturalize easily, such as *Crocus*, throw handfuls of the corms over the surface (ground covers or uncut grasses good) and plant where they fall or roll, for natural effects called "drifts".

Erythronium, also known as Troutlilies or Dogtooth Violets, prefer light shade and moist soil. *Fritillaria* is thought to be temperamental, sometimes growing well, sometimes not. This Crown Imperial likes limy soil, slight shade and July planting.

Leucojum wants to stay put and, if moved, may stop blooming for one or more years. It likes leafmold in either sun or shade. There are two common varieties known as Spring Snowflake and Summer Snowflake. The latter has more flowers per stem. *Licoris squamigera*, or *Amaryllis halli*, resents moving too. *Puschkinia* is another home lover, but if the blooms show a reduction over the seasons separate and transplant them. All the above are left in the ground the year around, a boon to those who resent digging and storing Dahlias, Tigridas, Cannas, etc.

Many perennials can be moved now — any that are dormant or the deciduous that are out of leaf. In general, move only the early bloomers and leave the late flowering ones alone. Peonies, of course, are a must for fall. If you're buying peonies get some with the ornamental foliage and those recommended for flower arranging.

Authorities differ on when to plant the Christmas and Lenten Roses. *Helleborus niger* and *H. orientalis* and other species such as *H. cyclophyllus*, *H. foetidus* and *H. viridis*. Arthur and Mildred Luedy, authors of "The Christmas Rose", say *H. altifolius* is the largest and most beautiful variety. The important thing is to plant some because they bloom when most other flowers are dormant — anytime from November to March, depending upon nature's whims. Hellebores like our alkaline soil, partial shade and shelter, and a rich soil. Roots go down 18 inches or more. These plants are tops for cutting.

Rhubarb and asparagus can be moved in September, too. Carrot, salsify, parsnip, beet and other vegetables will bloom in '62 if seeded right away. These make different, enduring, economical design materials.

INFORMATION SERVICE AT DENVER BOTANIC GARDENS

The Denver Botanic Gardens receive many requests for the names of officers of the various garden clubs and plant societies and often we are unable to be of assistance because we do not have an up-to-date roster of these names. We shall appreciate receiving a list of the names of the officers of such groups in this area, together with their addresses and telephone numbers. With this information we can assist interested people in contacting a responsible person in any particular group.

We now have lists for the following organizations:

DENVER BOTANIC GARDENS JUNIOR COMMITTEE
COLORADO FEDERATION OF GARDEN CLUBS, INC.
MEN'S GARDEN CLUBS OF COLORADO
THE DENVER ROSE SOCIETY
GARDEN CLUB OF DENVER

We have no lists for the independent garden clubs nor for the rest of the plant societies and plant study clubs in this area. We shall be happy to act as liaison agent between your organization and the inquiring public. Send this information to:

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The Green Thumb

OCT.-NOV., 1961

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Magazine for Rocky Mountain Gardeners



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OCT.-NOV.

Vol. 18

No. 8

The Green Thumb

To conduct research on plants, both native and exotic, in varied plant zones of our region, to evaluate their economic, medicinal and horticultural potentials.

To coordinate the knowledge and experience of botanists, horticulturists and gardeners.

To educate the public in the best use of horticultural materials.

To maintain a large collection of plant species and varieties for study and display.

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THE COVER

Aspens in
Southwestern
Colorado

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Denver County Agent

Every Saturday Afternoon — 4:30 p.m.
KLZ-TV Channel 7. The Week-end
Gardener by Herbert Gundell

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AT BOTANIC GARDENS HOUSE

OCTOBER

- 9th — Mon., 10:00 a.m. Judges' Council
- 9th — Mon., State Flower Show School
- 10th — Tues., State Flower Show School
- 10th — Tues., 4:00 p.m., Citizens' Street
and Shade Tree Committee
- 10:00 a.m., Herbarium Study
Group
- 11th — Wed., State Flower Show School
- 11th — Wed., 7:30 p.m., Landscape
Contractors
- 12th — Thurs., 1:30 p.m., Washington
Park Garden Club Tea
- 7:30 p.m., Rose Society
- 17th — Tues., 12:00 noon, Sloan's
Lake Garden Club
- 17th — Tues., 8:00 p.m., Tree Class
George Kelly
- 18th — Wed., 9:30 a.m., Fun with
Flowers Workshop
- 19th — Thurs., 10:00 a.m., "Around
the Seasons" Club
- 20th — Fri., 7:45 p.m., Orchid Society
- 21st — Sat., 2-5 p.m., Orchid Show
- 22nd — Sun., 1-5 p.m., Orchid Show

- 25th — Wed., 7:30 p.m., Landscape
Contractors
- 26th — Thurs., 9:00 a.m., National Council
of Garden Clubs Reading
Examinations. Mrs. Seastone

NOVEMBER

- 1st — Wed., 7:30 p.m., Botany Club
- 6th — Mon., 9:30 a.m., Junior Committee
- 7th — Tues., 1:00 p.m., Mountain View
Garden Club
- 8th — Wed., 2:00 p.m., County Agents
and Seed Growers Meeting,
H. Gundell
- 7:30 p.m., Landscape Contractors
- 13th — Mon., 10:00 a.m., Judges' Council
- 7:45 p.m., Orchid Society
- 14th — Tues., 10:00 a.m., Herbarium
Study Group
- 15th — Wed., 9:30 a.m., Fun with
Flowers Workshop
- 16th — Thurs., 10:00 a.m., "Around the
Seasons" Club
- 20th — Mon., 1:00 p.m., Green Thumb
Garden Club
- 4:00 p.m., Botanic Gardens
Board Meeting
- 21st — Tues., 1:00 p.m., African Violet
Council
- 23rd — Wed., 7:30 p.m., Landscape
Contractors

DECEMBER

- 1st — Fri., 2:00 p.m., Floral Art Study
Club Tea
- 2nd — Sat., 1-5 p.m., Floral Art
Christmas Display
- 5th — Tues., 1:00 p.m., Mountain View
Garden Club
- 6th — Wed., 10:00 a.m., Colorado
Federation of Garden Clubs
State Board
- 7th — Thurs., 7:30 p.m., Botany Club

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NOTES AND NOTICES

HOME DECORATION EXHIBIT — A Christmas Exhibit of Decorative Ideas will be displayed at the Graham Galleries, 3273 South Broadway, Englewood, December 1-11 by the Open Gate Garden Club. This exhibition is a service to the public, showing various types of decorations that can be made for the home. Included will be miniature Christmas trees, wreaths, door swags, table and buffet decorations, arrangements of dry materials, Christmas tree ornaments and many other decorative creations for the home.

NOTED VISITOR — Mr. T. H. Everett, Assistant Director of the New York Botanical Garden, visited the Denver Botanic Gardens on October 6 and 7 to consult with the Board of Trustees regarding the construction of a conservatory. Mr. Everett has visited and studied most of the conservatories of the world and is an authority on the subject.

PARTY FOR MISS DURFEE — Monday afternoon, October 2, friends of Miss Bertha Durfee gathered for tea at Botanic Gardens House to wish her godspeed and to express appreciation for her many years of service as well as for the distinguished quality of her work. Mr. M. Walter Pesman acted as master of ceremonies, speaking of our gratitude to her and presenting our gift of a purse laden with Western spirit in the form of silver dollars.

CHILDREN'S GARDEN GRADUATION — September 9 was Graduation Day in the Children's Gardens. Eighty-seven members received certificates of merit for satisfactorily completing the season. First prize was awarded to Annette and Matthew Reynolds, 642 Dahlia; 2nd prize, David and Deborah Vleck, 1069 Milwaukee; 3rd prize, Kathleen Shea, 910 Olive. Honorable Mention: Alison and Judy Eha, 163 Madison; David Kuykendall, 1290 Oneida; and Patty Retherford, 742 Harrison.

BOOKS AND BOOKLETS FOR SALE

The following publications are available for purchase in the office at Botanic Gardens House, 909 York Street:

Around the Seasons by S. R. DEBOER	\$1.00
Colorado Evergreens by ROBERT E. MORE	2.50
Colorado Wild Flowers by HAROLD and RHODA ROBERTS (a museum pictorial)	1.25
Fruit Key (identification of plants by their fruit) by WILLIAM HARLOW60
Handbook of Plants of the Colorado Front Range by WILLIAM WEBER	5.00
(Also available in paper bound edition)	3.00
How to Grow Good Gardens in the Sunshine States by GEORGE KELLY	Spiral 3.25 Regular 3.00
Meet the Natives by M. WALTER PESMAN	Spiral 3.60 Regular 3.00
Nature Games by PAUL W. NESBIT60
Planning for America's Wildlands by ARTHUR H. CARHART	2.50
Plants of Rocky Mountain National Park by RUTH ASHTON NELSON	1.10
Saga of a Forest Ranger by LEN SHOEMAKER	5.00
The Secret of the Green Thumb by HENRY and REBECCA NORTHEN	5.00
Twig Key (identification of trees and shrubs in winter) by WILLIAM HARLOW60
What Tree Is This? by the DENVER CITY AND COUNTY25

ARTICLES OF LASTING INTEREST TO TODAY'S GARDENER

In past issues of The Green Thumb are several articles of great interest. Copies may be obtained from Mrs. Helen Vincent at Botanic Gardens House. Among such articles are:

Lilacs for Colorado by MILTON J. KEEGAN — December, 194410
(Beautifully illustrated)	
Flowers and Gardens of the Central City Region — July-August, 194650
(By several authors — well illustrated)	
Hawthorns by M. WALTER PESMAN — May, 195010
(Very descriptive and well illustrated)	

DENVER BOTANIC GARDENS NOTE PAPER AVAILABLE — send your personal notes to your friends on our attractive note paper with Botanic Gardens House etched on the front. Available from Mrs. Vincent, Botanic Gardens House, 909 York Street. \$1.00 per box.

A Great Plains National Monument in Eastern Colorado

J. V. K. WAGAR¹

A GREAT PLAINS NATIONAL MONUMENT, in one of the more scenic portions of eastern Colorado, would place a magnificent natural botanic garden within a day's easy round-trip drive from Denver. For visitors unaccustomed to eastern Colorado, it would show the Great Plains at their best, and would break the monotony of open lands between Kansas and Nebraska and Colorado's Front-Range foothill towns.

George Catlin (1796-1872), famous pioneer painter of western Indians and scenes, wrote of such a wonderful possibility in 1841:

And what a splendid contemplation . . . when one (who has travelled these realms and can duly appreciate them) imagines them as they might in future be seen, (by some great protecting policy of government) preserved in their pristine beauty and wildness, in a magnificent park, where the world could see for ages to come, the native Indian in his classic attire . . . amid the fleeing herds of elk and buffaloes . . . A nation's park, containing man and beast, in all the wild and freshness of their nature's beauty!

Kansas and the National Park Service urge the establishment of a Prairie National Park north of Manhattan. That, too, will be a beautiful natural botanic garden, but that is tall-grass prairie, not short-grass Great Plains, and it is far from Colorado. Though plants and wildlife of the two regions overlap somewhat, they and the general scenes differ greatly. Each setting is needed as a natural reservation.

GREEN THUMB readers in Denver can obtain the best concept of the potential beauty of a Great Plains National Monument by visiting the dioramas of the plains and mesa country of northeastern Weld County, shown on the second and third floors of the Denver Museum of Natural History. There the complex of buffalo and grama grasses, rabbit brush and three-lobed sumac, prairie dogs and burrowing owls and badgers, antelope and prairie falcons — to mention just a dominant sprinkling of native species — is shown in beautiful array.

Many since Catlin have wished we could possess a reservation upon the Great Plains wherein all of the growing wild things present when white men first came could surely be seen. We lack sufficient dominance over destiny to preserve in such an area all that Catlin coveted. "The native Indian" desires a higher standard of living than Catlin's reservation could afford. The Plains wolf, which early travelers saw in great numbers, cannot now be tolerated near ranches. But most of the old complex could be coaxed back or restocked. A few Indians, as well as we who are relatively recent immigrants, might enjoy and help with the spectacle.

¹J. V. K. Wagar, Head, Department of Forest Recreation & Wildlife Conservation, Colorado State University, Fort Collins.



A Scene in the Pawnee Buttes Area

Range managers, outing club members, and museum experts I know best, agree that the Pawnee Buttes in Weld County are the most fitting site for such a monument. When viewed from one of the mesas shown in the Denver dioramas, they appear as in the accompanying illustration. The name, the place, and the partially public ownership all combine to make the area a logical choice.

Of all land-management patterns, national monument status most nearly approximates what is needed. These, under jurisdiction of the National Park Service, keep areas in utmost naturalness. They need not possess the world fame and great size which inherently characterize the best of our 29 national parks, yet can be nationally important and cherished by those who know their significance.

The Pawnee Buttes are now within the Pawnee Buttes Geologic Area, a part of the Pawnee National Grassland administered by the Roosevelt National Forest. Forest Service literature states the area was "recently classified to protect the outstanding wildlife, fossil, and geologic features for the study and enjoyment of the public."

The Forest Service once was permitted to discover, recommend for establishment, and administer national monuments. If again possible, and if the area can be given the naturalness needed within such an area, such jurisdiction is satisfactory. If a natural representation of plants and wildlife is not possible under Forest Service administration, the land should be exchanged for nearby properties of the U.S. Department of the Interior and a national monument created under the National Park Service.

A Great Plains National Monument at Pawnee Buttes should bring a patronage which could restore the neighboring ghost town of Keota; not to a booming metropolis, but to a stable, dependable small community with the promise it possessed early in the century.

Our Senators and Representatives are now being alerted to the unique values of this area. Interest and letters from readers of the GREEN THUMB will help greatly.



FALL COLOR IN THE CITY

FRANCES NOVITT

BARRING an early storm, fall color in the city borrows some of its brilliance from the summer annuals. Throughout the city parks annual beds are still very colorful through September, if it is a mild month; they may even be competing with October foliage unless there is a bad freeze. Tender plants like Coleus and Begonias may be nipped by light frosts, but Petunias, snapdragons, Geraniums, Verbenas, Lantanas, Stocks and Gloriosa Daisies will still blaze away in the autumn sun.

Late perennials bring much fall color in the city. Some Perennial Phlox is still showing color, as well as Physosyria, Liatris, Goldenrod, red Showy Sedum, Rubrum Lilies, Helianthus, Helenium and Roses, to mention just a few. These are in addition to autumn's special blooms—Chrysanthemums and Asters.

Fruits of shrubs contribute greatly to fall colors. Some of the beautiful red fruits we shall see this fall are those of the Japanese Barberry and the deciduous Euonymus shrubs like the Winged, American and European Euonymus. The bright orange or red berries of the Pyracantha will be showy a long time this winter, contrasting with the dark evergreen leaves. Many of the shrub roses have very large bright red hips which remain attractive all

winter. The European Highbush Cranberry keeps its clusters of bright red berries almost all winter.

The most conspicuous white-fruit shrub is the Snowberry. *Symphoricarpos albus*. Blue or black berries are less showy than red or white. The Nannyberry, *Viburnum lentago*, has flat clusters of black berries, raisin-like and edible, some of them persisting into winter. The Common Privet, if used as an informal shrub, and not pruned into a hedge, carries large glossy black fruit in terminal clusters, appearing in autumn and persisting through winter. Creeping Cotoneaster, *C. adpressa*, and *C. horizontalis* (less hardy here), have red berries. Some of the Prunus species, such as Western Sandcherry, have black or purplish fruits which persist into winter.

Fall fruits of trees contribute less to autumn color than those of the shrubs, partly because they are above eye level, so that there must be a great many to be effective. Many tree fruits are small and uninteresting. One kind of tree in Denver which has had prominent fruit during most of August is the Tree of Heaven, *Ailanthus altissima*. All over Denver, both pale yellow and red fruited varieties are showy with clusters of "keys." They are easy to recognize with their long compound leaves, small

to medium size and well-rounded form. The fruit clusters will last most of the fall season. Another smaller tree with interesting fruit is the Golden-rain tree, *Koelreuteria paniculata*. These little trees, with doubly compound leaves, are now showing off their panicles of triangular bladder-like husks. These are first yellow-green, then fade to pale tan or white and look like clusters of little Chinese lanterns. They will last through most of the autumn.

Many of the Hawthorns, thorny, small, round trees, have beautiful red apple-like haws, which last most of the winter. West of the memorial in Cheesman Park, the rows of Cockspur Thorns, *Crataegus crus-galli*, will have rich red fruit, about one-half inch in diameter, from September on.

The Hopa Crabapples along Speer Boulevard, east of Broadway, have bright red apples, about an inch in diameter, which will persist until winter. From private yards one can use these fruits for making preserves and jellies. Many other flowering crabs here in Denver have fall fruit in tones of red, orange and purple. They vary in the length of time they are effective. Particularly fine is the fruit of the white-flowered Dolgo Crab.

Throughout the city, the European Mountain Ash trees have been showy with flat clusters of orange berries which will last through most of the fall season.

The brilliance of fall foliage, as we know, varies from year to year, depending upon combinations of moisture, temperature and sunlight. Red foliage this fall in Denver, storms permitting, will come from the following

shrubs, a list by no means complete: Ginnala Maple, Japanese Barberry, Siberian Dogwood, Red Osier Dogwood, various deciduous *Euonymus* varieties, all the Sumacs, some of the shrub roses such as the Prairie Rose and Rugosa Rose and the Mahonias whose evergreen holly-like leaves turn red for the winter.

We can count on Boston Ivy and Virginia Creeper vines to add their part to fall's red flames.

Probably, Denver's trees will give us more yellow than red fall color. Our older residential areas will be bright with the yellows of Silver Maple, Ash, American Elm, White Birch, Western Hackberry, Honey Locust, Cottonwood and Golden Willow.

When we think of fall color I guess we all think of oaks. If weather conditions are favorable, the Red Oak and Pin Oaks will show wonderful red colors; the coarser-textured Bur Oak will be russet or yellow-brown. Some of the Hawthorns will be red, too, the Cockspur Thorn and Washington Hawthorn being outstanding. Many of the flowering Crabapples will turn red as well.

Some trees which change color little or unattractively, or just before the leaves fall, are: Norway Maple, Ohio Buckeye, Tree of Heaven, Golden Rain-tree, Western Catalpa, English Hawthorn, several of the flowering Crabs, European Mountain Ash, American Linden, European Linden, Russian Olive and Japanese Pagoda tree.

The greens of evergreen trees provide a strong note of contrast with the flaming deciduous leaves and are a definite part of the fall color scheme.



WASHINGTON PARK GARDEN CLUB members have started a fund to purchase a much-needed portable microphone for Botanic Gardens House. Other clubs or individuals interested may send contributions to the House.

Bulbs

In The Garden

FRED VETTING



Peter Pan Crocus

AS THE YEARS go by it seems that winters drag on and hang on with the tenacious grip of a Bulldog. When spring comes at last we welcome it with gladness in our hearts and blisters on our hands. It is a season that means clean up, fix up and freshen up the areas outside the walls of our homes. Spring is also an awakening of the living things out of doors which have been slumbering for several months.

Living plants mean beauty — and beauty has one of its main components in color. When words like color and spring are put together, one cannot keep from thinking of bulbs — Flowering Bulbs.

In order to get the most enjoyment out of any type of flowers, it is important to have good varieties. Not just any bulb will do, but buy good ones. During the spring blossoming time one can make notes of preferred varieties, or at the time of purchase in the fall color plates and descriptions can act as a guide. The following varieties have been very good in my garden.

I. Narcissus (a) (Trumpet and large-cupped types): Spring Glory, Mrs. R. O. Backhouse, Unsurpassable,

President Lebrun, King Alfred and Mount Hood. (b) (Small-cupped and cluster types): February Gold, Firetail, Geranium, Thalia and Mary Copeland.

II. Tulips (Single, early group): Yellow Prince, Red Emperor, White Hawk. (Double, early group): Peach Blossom, Mr. Van DerHoef. (Cottage group): Maytime, Mrs. John Scheepers, Smiling Queen and White City. (Darwin group): Bartigon, Clara Butte, Unsurpassable, Queen of the Night, Golden Age and Zwanenburg. (Darwin Hybrids): Gudoschink, Oxford, and Holland Glory. (Parrots): Fantasy, Blue Parrot, Parrot Wonder and Texas Gold. (Double, late group): Eros, Mount Tacoma, Livingston. (Breeder group): Bacchus, Pontiac, Bronze Queen and Louis IV.

III. Hyacinth: City of Harlem, La Victoire, L'Innocence, King of Blue, Perle Brilliant and Pink Pearl.

IV. Smaller Dutch Bulbs: Snowdrops, Chionodoxa (Glory of Snow),

The Squill (*Scilla* sp.), Grape Hyacinth and the wonderful Dutch Crocus.

After deciding upon the kinds, types and varieties of bulbs to plant, the next step is where and how to plant them.

SOIL PREPARATION

Almost all spring bulbs prefer a sandy loam soil. Well-rotted manure and well-worked compost will help almost any soil problem. Work this material into the soil ahead of planting time. Do not add fresh manure or compost when planting your bulbs. Bone meal is one of the best fertilizers and may be applied to beds prior to planting time at the rate of $\frac{1}{2}$ pound per twenty-five square feet. Work the soil over several times so the soil will be loose for the bulb roots to start growing.

PLANTING

The question of how deep to plant the bulbs invariably comes up. A good rule to follow in most cases is simply this: if the mature flower is small and short (Crocus) plant fairly shallow, 2 to 3 inches deep. If the mature flower is tall and has a narrow stem (most tulips and daffodils) plant deep, 8 to 12 inches. And if the mature flower is of medium height and of stout substance (Hyacinth) somewhere between the two depths will be enough, 5 to 7 inches.

The best time for planting is usually during October and the early part of November. However, I have planted as early as September and as late as Christmas-time in frozen soil and have enjoyed beautiful flowers the next spring.

For a more casual and naturalistic effect, plant your bulbs in drifts — groups of like varieties in irregular arrangements. Planting different groups

of bulbs at irregular spots around the base of dwarf shrubs gives a pleasing effect. Bulbs of almost every kind do very well in filtered shade as well as in full sun.

WATERING AND FEEDING

Of all the basic requirements important to good plant culture, I believe water to be the most necessary. Yet water, because of its easy accessibility is used with little forethought. Water is to flowers and plants as blood is to the human body. A good supply at all times is very essential to the health and looks and vitality of both. Regardless of how rich or fertile the soil may be plants without a constant supply of water are not going to produce top specimen flowers. After making sure your bulbs have good drainage, so that they will not drown, give them plenty of water.

I find that by planting annuals over and between where the bulbs are planted two things happen. One, the leaves of the bulb plants protect the small fresh-out-of-the-greenhouse annuals until they become established and two, fertilizer and water given the annuals work down to the bulb roots and repays the bulbs by giving them plenty of nourishment. This feeding in addition to the bone meal that was applied at planting time, is sufficient to assure a good crop for next spring.

One of the enjoyable things about planting bulbs in the garden is the relative ease of care — diseases and insects are few. Perhaps the one enemy of the bulb, is the man who digs up the garden every time the urge hits him. Many a shovel blade has made half bulbs out of whole ones. It is a good idea to label, or keep in mind, the location of your bulbs.





Plant Collecting Party at Pawnee Lake — 1940

HOW IT ALL BEGAN

KATHRYN KALMBACH

IN LOOKING over the early numbers of *The Green Thumb*, first published by the Colorado Forestry and Horticulture Association, we find the first mention of an Herbarium in the January-February issue of 1947. While the writer well remembers the thrill of having a place to start a collection of specimens of Colorado plants in the new home of the organization on Bannock Street, this was not the real beginning of the Herbarium which is now housed at Botanic Gardens House.

Several years before, Joseph A. Ewan, botanist at Colorado University, began a series of Extension Courses in Denver in the study of Colorado Flora. A number of Denver folks, who are today well-known members of Denver Botanic Gardens, were among Mr. Ewan's students. To mention a few, they were: Dr. E. H. Brunquist, Dr. and Mrs. James Waring, Mrs. H. M. Kingery, George Kelly, Robert More, Erl Ellis, the Harold Roberts, M. Walter Pesman, Alice McWhinney, Alice Wood and many others, including the writer.

Mr. Ewan's classes included a number of field trips on which his students were introduced to the methods of collecting botanical specimens, and a number began to acquire pressed specimens of their own. In the years following these classes, many of the members continued to explore various parts of Colorado in their search for new plants.

Many week-end, or shorter, trips were made in Erl Ellis' station wagon and in George Kelly's pick-up truck, jeep or station wagon. Who among those



Working on Hebarium Specimens — 1940

Left to right:

Mrs. Kathryn Kalmbach

Miss Henrietta Zobel
(Now Mrs. J. H. Kelsoe)

Mrs. Aven Nelsen

Dr. Aven Nelsen

Mr. M. Walter Pesman

students could forget the thrill of finding *Boykinia* on Pike's Peak, Cotton grass in the meadow near Palmer's Lake or yellow Ladies' Slipper in the marsh near Monument Lake!

The Colorado Mountain Club also played an important part in the beginnings of our little Herbarium. There was the wonderful Mountain Club camp at Crater Lake in July of 1940. Here we had the company of the late Dr. Aven Nelson and Mrs. Nelson, Henrietta Trobel, then Botanist at Denver University Dr. Brunquist, George Kelly and Walter Pesman, and other enthusiastic botanists.

When we began to deposit our specimens at Horticulture House, we were fortunate in acquiring generous donations from Mr. Ewan, a fine collection of grasses from Dr. Harrington of Fort Collins, specimens and much help in nomenclature from Dr. William Weber of Colorado University. Mrs. William H. Crisp was instrumental in getting for us some valuable specimens collected by Alice Eastwood and other early day botanists. We have also acquired a number of fine "Album Herbaria," which we hope to have a way of displaying at a future time.

Our latest addition to the Herbarium has been the fine large collection of Colorado plants made by Dr. John B. Hartwell of Colorado Springs. The Hartwell collection has nearly doubled our number of specimens.

We are fortunate in having an interested group of members who meet monthly to help with the preparation and classification of specimens. Our plans for the future are built around the acquisition of specimens of the native and cultivated plants of Colorado and the Rocky Mountain Region. The large Herbariums of Colorado University and Aven Nelson Herbarium at Laramie, Wyoming, can always be consulted for study of all plant life, but in the small Herbarium at Botanic Gardens House we hope we may be of service to the members of the Denver Botanic Gardens in helping to identify weeds, garden plants and natives of our region.

Many Denver Botanic Gardens memberships expire in November and December. *Have you renewed yours?*

Let's Go Native

WM. H. LUCKING

LET'S GO NATIVE! Better yet, let's grow native—plants, that is. Many have extolled the virtues of plant material native in the Rocky Mountain States but few have told how to propagate or grow these plants.

Let me share some of my successes and failures in propagating choice plants found in our mountains or nearby plains and foothills.

Let's begin with our native hollygrape, *Mahonia repens*. One of our most valuable broadleafed evergreens, hollygrape may be used as a ground cover, in rock gardens or as a specimen clump in sun or shade. Its blue-green foliage turns to reddish-purple in winter. The plant produces clusters of yellow blossoms in early spring and fruit in August. It is not particular about soil. In the Denver area our native Mahonia will grow 18 inches high but withstands vigorous trimming if one wants to keep it low.

Mahonia repens grows in various locations in our mountainous areas—in sun, shade, high on an exposed hillside or in a valley of deep shade. It seems so simple to collect young shoots in the mountains, bring them to our gardens and plant expectantly. Behold, it is not that easy! During my many years with Roberts Nursery I succeeded in growing relatively few. Some years later, as a nurseryman with the Denver Parks Department, I found a large planting of native Mahonia growing successfully in one of the parks. Although this planting had been established with great effort, it renewed my enthusiasm. Again I decided to try growing this desirable plant in great numbers—this time from seed.

The park planting bore a good crop of fruits that year, and in late August

when the berries were ripe, I eagerly collected the seed for my adventure. I soon learned that it takes a lot of patience and effort to produce Mahonia plants from seed. The procedure which I found successful is as follows:

After the fruit is collected the seed is carefully cleaned from the pulp. In the fall, the seed is planted in a cold frame. The soil should be light loam mixed with some peat and sand. The seed is sown in rows about 2 or 3 inches apart and covered with about $\frac{1}{4}$ inch of soil. It is then well watered. To prevent the soil from drying out it is mulched with leaves to a depth of 2 or 3 inches.

Mahonia seed germinates very early in spring. At that season it is necessary to dig into the mulch very frequently to learn if germination has begun. When the young sprouts appear above the soil the mulch should be removed and a lath frame set over the cold frame to provide partial shade. The young plants must be watched closely to prevent their drying out or burning by the sun.

The seedlings are left in the cold frame all summer under the protection of the lath shade. The following spring they are potted in 2-inch pots and the pots are plunged in the soil of the cold frame and left to grow another year. The next spring the plants should be large enough to set out in open ground, but I prefer to repot them in 3-inch pots and grow them another year in the cold frame. In my trials, the plants were shaded the second and third years, but whether this is necessary I do not know.

This makes the production of Mahonia planting stock from seed a three-year project. Although this tries your patience you will be well rewarded.

Los Angeles State and County Arboretum

DR. WM. S. STEWART, *Director*

This is the second part of an article about the Los Angeles State and County Arboretum, written by Dr. Wm. S. Stewart. The first part appeared in the August-September issue of the Green Thumb. It presented an enlightening word picture of the principal features of the Arboretum. In this issue the educational program and facilities of the Arboretum are described.

EDUCATION is one of the two main functions of an Arboretum. Our program started in 1956, is expanding in a phenomenal manner. This expansion is entirely due to the tremendous demand by the public for classes in Home Landscaping, Home Gardening, Plant Identification, Orchid Culture, Botanical Sketching and Nature Study, to mention a few. Courses for Juniors are not neglected either, as in the past fiscal year 335 children were enrolled in 19 different classes and 12,269 children were tabulated for field trips.

The second main function is research, both fundamental and applied. Most of the fundamental research is being done with grants from various sources. The testing and introduction of new plants from all over the world has been carried on since the Arboretum started. Some of the very recent introductions are Felicia "Santa Anita," Grevillea lanigera, Mellaleuca elliptica, Calothamnus ruprestis, the White Jacaranda, and ground covers like Osteospermum fruticosum and Verbena Peruviana. The large collections of Eucalyptus, Acacia, Callistemon and other bottle-brush groups, Erythrina and South African bulbs, provide a rich source of material for plant breeders and for critical taxonomic studies of many genera of plants.

Forest and brush fires do tremendous damage each year in Southern California. A program is in progress in cooperation with County and State forest services aimed at locating and testing plants with a high degree of fire resistance for use in replanting burned over areas. To date, the genus Cistus offers several promising species. Other genera are also being tested.

Additions of a plant pathologist and an entomologist has increased research in these fields. One pathological problem under way is the study of oak root fungus which is ravaging the fine old Coast Live Oaks, so much a part of our native landscape.

In Southern California considerable differences in maximum-minimum temperatures are not uncommon within very short distances. To improve

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LASCA's testing and introduction program, several test stations in areas of different climatic conditions are now being used. The first of these, located in the Mojave Desert in the Antelope Valley near Palmdale, was started several years ago. It has proven highly successful. Another test station near Playa del Rey on the ocean permits using a high humidity area. In addition, the Lux Arboretum in Monrovia, which has been a part of the Arboretum for several years, provides a completely frost-free test area.

On July 1, 1958, the Department of Arboreta and Botanical Gardens assumed administration of Descanso Gardens in La Canada, California. Here are over 100,000 camellia shrubs representing approximately 800 varieties growing under Coast Live Oaks which cover thirty acres. There is also a California Native Plant Garden, started in May 1959, which serves a popular demand as a "reference library." Two Rose Gardens, one of which is devoted to the history of the rose, shows specimens arranged chronologically throughout the entire Christian era, and the other displays the winners of the All America Rose Selection awards, an event which started in 1939.

A "first" of major importance was achieved at the Arboretum in May 1958, when four Demonstration Home Gardens were opened to the public. These

gardens, sponsored jointly by the California Arboretum Foundation, Inc., and Sunset Magazine, were designed and built to help home owners discover the wonderful world of living in and with their gardens in Southern California. The words DEMONSTRATION and HOME are keys to how and why the gardens were designed and built. First, they were planned for the homes of average people. Second, they were designed to demonstrate how to use hundreds of new and old building materials, as well as new plant introductions and old plants in new settings. These gardens are a demonstration of many ideas rather than a single approach to garden layout and design. They are planned for flexibility. Furniture and plants can be changed by the season; structures may be altered, remodeled, rebuilt — to try out new ideas and new materials. These gardens are proving tremendously popular.

A bit more than twelve years ago, a small group of civic-minded people had an idea that they felt would improve and benefit Southern California and Los Angeles County in particular. The Los Angeles State and County Arboretum is the realization of that idea, and illustrates in the finest way how local government and private capital and energy can work together for the benefit of the whole community.



Exotics of Colorado

HELEN MARSH ZEINER

THE OAKS

AT THIS TIME of year the beautiful fall color of certain oak trees makes an eye-catching addition to the autumn landscape. These large oaks are exotic to Colorado, but native to the eastern half of the United States. In their native haunts they may form extensive stands and are often an important part of the famed fall colors of the deciduous forests. Oaks have not been used extensively in Colorado and other states of the Rocky Mountain region because they are slow-growing and sometimes difficult to establish. However, once they become established they are hardy and long-lived. They occur naturally where soils are more acid than in Colorado — so anything which can be done to increase soil acidity makes the oaks more at home. Not all oaks color at-

tractively. For example, the bur oak, probably the most commonly used oak in Denver, offers little in the way of fall color. However, the bur oak is a very desirable tree in other aspects and is probably the easiest oak to establish in this area. The red, scarlet, and pin oaks, while generally considered more difficult to grow than bur oak, make beautiful displays of fall color in shades of red varying from purple red to clear orange-red. These oaks can be obtained without difficulty. While they are more expensive than many trees, they are well-worth the extra price, the time it takes to grow them, and the care necessary to successful establishment. In the case of the oaks, patience is rewarded with a beautiful, enduring tree to be enjoyed for a life time.



THE ART OF BONSAI

FRANCES MORRISON

THE WORD "bonsai" literally translated means "tray tree." The art of growing these dwarfed potted trees has been practiced by the Japanese for many centuries. The oldest authentic record of bonsai is pictures of dwarfed trees and herbaceous plants in containers in a noted scroll written in 1310. Illustrations and descriptions of bonsai are found in old Japanese gardening books published in the seventeenth century. Quoting from an article by Kan Yashiroda, concerning photographs published in the early 1800s, "These are not childish attempts or vague ideas but are the products of long years of an age of military ascendancy, when every profession was hereditary — the time called the Tokugawa Era. In those wonderful, long, peaceful years, the Japanese people were accustomed to escape from daily life into something that interested them; they devoted their leisure time to things that freed them from the restraint of social life; they entered into friendly rivalry with their fellow fanciers. When amateurs have their enthusiasm aroused, they are always without regard for the gain or loss involved; that attitude greatly advanced bonsai. Professional men have been interested only in seizing the cream of the amateurs' discoveries in ideas and in materials. Therefore, I praise the amateur bonsai fanciers. In Japan, there are nearly as many amateurs as bonsai trees. A large number of them are worthy of saying 'We wear proudly the name of amateur.'"

Some of the bonsai are naturally dwarfed specimens, taken from the mountains with great care, for usually they have grown on rocky hillsides. Patience

is necessary in reestablishing them. The majority of the trees generally seen are developed from ordinary nursery stock or from somewhat dwarfed trees found in a natural habitat. The practice of artificially dwarfing might be more aptly described as "revolutionizing" normal growth.

This paper is prepared for the purpose of introducing this fascinating art to the reader. A brief summary of the selection, planting and care of bonsai follows but is a poor substitute for a few object lessons by a competent consultant.

A great many varieties of both evergreen and deciduous trees and shrubs are suitable for this culture, but it is advisable to use those with a natural aptitude for slow growth. Evergreens do not do well in the hot, dry atmosphere of our homes, and unless greenhouse conditions are available, the varieties hardy in our area should be chosen. Some nurseries offer two-year plants grown especially for bonsai use. Rooted cuttings of flowering shrubs, such as winged euonymus, pyracantha, flowering almond and forsythia may be used or your nurseryman may be able to supply seedlings.

The container should be chosen with the shape and variety of the specimen in mind, but in general, a plain harmonious color of pottery with provision for good drainage is the wise choice. A layer of pea-size gravel, a layer of sand, and a good mixture of potting soil should be put into the container. The roots of the plants should be carefully trimmed with a sharp knife or clippers. Then the potting soil is carefully sifted around the roots to the proper depth. The soil should be well settled, allowing no air pockets. The container should then be immersed in water and, particularly in case of evergreens, the plants should be sprayed with a fine mist for several days.

Training the bonsai is done by pinching new growth, trimming, and by wiring with fairly large copper wire. The wire is twisted around the limb and then bent to desired shape, which varies according to the general and natural growth habit of the specimen, and to the artistic ability of the grower. Rules for training bonsai are the same as followed by the Japanese in their flower arrangement. The trees are repotted when new root growth is needed to keep a vigorous plant. They are fed liquid fertilizer.

The beginning bonsai may be made more attractive by adding stones with lichen and moss, and by use of driftwood. They may be made up into small landscapes, which are called bonkai. Some are grown clasping a stone with crevices. Moss may be used to cover the top of the soil. Dried moss may be crushed and sifted over the top of the soil and will soon give a beautiful green blanket.

Much of the information given has been taken from "The Handbook of Dwarfed Potted Trees," published by Brooklyn Botanic Garden. The practical training and instruction was given by Mr. George Fukuma, a consultant in this art, and Vice-President of The Denver Bonsai Club, to whom is accredited the degree of success so far achieved by the author. The failures and the joys have been her own.



A Denver Botanic Gardens membership is an appropriate Christmas gift for a gardener friend. Each issue of The Green Thumb will be a reminder of your thoughtfulness.

Using YUCCAS and CACTI In Your Landscape

JULIA H. ANDREWS

CACTI and other desert-growing plants are often considered only as a last resort when planning a landscape. Perhaps this is because of their spiny nature or, perhaps, many people have not had the opportunity to observe the beauty that cactus and yucca can provide. Some may feel that such plants belong in the "desert" and will not do well in the Denver area. Denver and the surrounding communities, however, are well-suited for arid and semi-arid plants because this area is a semi-arid habitat.

To give you an idea of how well these plants can be used in a landscape, let's cite a few examples. *Yucca glauca*, a native of the Colorado Plains, and the eastern species, *Yucca filamentosa*, are now being used in Aurora, Colorado, to landscape the narrow highway dividers at hot, dry intersections. With their green foliage in winter and showy flowers in summer they provide year around beauty to an otherwise unglamorous location. Yuccas and cacti are often seen growing in jardinières placed at the edge of a patio, adding texture to what is often a monotonously smooth area. Rockeries and rock-retaining walls, too, are sometimes sites for these plants.



Yucca glauca

For the home-owner who has some land that does not lend itself to the growing of Kentucky Bluegrass, a planting of yuccas, several varieties of cacti and native grasses will sometimes fit the need. The gray-green foliage of the native yucca and the colorful flowers of many cacti will bring drama to an all-green landscape.

The variety of the shapes that are found in the cacti and the unusual forms of yuccas make them quite compatible with the contemporary style of architecture. The yucca, with its rosette of spikes, adds character to the landscape when planted among cacti such as *Opuntia arborescens*.

In addition to lending special interest to your landscape, the cacti and yuccas are valuable when used as barriers against dogs (and sometimes people). The very nature of these plants allows them to be planted in areas where few

other plants will survive, such as next to the south-facing glass wall of a building which reflects hot sun rays with terrific intensity or fronting a light-colored fence that also reflects the heat.

For the beginner, start with the common species such as *Yucca glauca* and *Opuntia arborescens* and gradually build the collection with more species. *Yucca glauca* can be used in repetition among the "specimen plants" of various other yuccas and cacti. This will tend

to "tie" the planting together and give it a more natural setting.

The next time you have occasion to be close to cacti and yuccas, examine them carefully and you will find that they have many intriguing features which make them interesting for the home landscape where small details become so important. Try them in your own garden and notice the tiny spot of drama. Their drama seems so special when compared with our standard cultivated garden plants.



Next 100 Years In Ornamental Horticulture

GEORGE BEACH, *Professor of Horticulture, CSU*

***The year 2060 will see people in outer space;
but their numbers will be small compared to the earthlings.***

SOMEONE predicted several years ago that men would eventually be decanted from laboratory flasks — that the alphas and betas would do all the work and the gammas and deltas have all the fun. Such a state of affairs is surely more than a century in the future, but as human efficiency increases the people will have more leisure time. And what do we do with the time we save? We spend it. Time is one thing we don't save very long — we spend it at work, at play, or we just "kill" it.

We'll probably have more trees, shrubs and grass downtown in 2060 than we have today. Can we afford the space for them there? If they are useful as well as ornamental — yes!

Pleasant surroundings add not only to man's productiveness, but to his enjoyment of leisure time. He must be recreated periodically. His recreation is active or passive. The more active it is, the harder he breathes. Not for food alone does man depend upon the

photosynthesis of plants. He depends upon plants for the very air he breathes. Not only the crop plants, but all the wild plants of field and forest are constantly purifying the air we breathe.

Just as pioneer man brought plants with him, the astronaut will take plants into space. He'll take them to purify the air he breathes. Trees and shrubs will be too bulky for space travel, but surely he'll take the chlorophyll — that marvelous pigment which uses the power in sunshine to split water into hydrogen and oxygen. The oxygen man must have to breathe. The carbon dioxide he exhales can be reduced to sugar by the hydrogen freed from water in photosynthesis.*

*Note to the "thinking man": You are right — plants also use oxygen and give off carbon dioxide, but a new source of oxygen results from photosynthesis by splitting the water molecule to release oxygen. And the carbon dioxide given off by plants is only a fraction of the amount taken in by the plant.

There will be many more earthlings in 2060, more crowded together than now and burning more fuel. Fuel burning and breathing use up oxygen and foul the air with carbon dioxide. The more men and engines we have in 2060, the more plants we will need. Plants use the carbon dioxide which we foul the air — freshening it by giving off oxygen.

The Dean of an American medical school has recently advocated planting a certain number of trees for every automobile, truck, plane and other air-polluting machine to maintain our balance of oxygen to carbon dioxide in the air.

INDOORS OUT — OUTDOORS IN

Many people today are alarmed by the rate at which the exploding metropolis is eating up our space on earth. Man needs open space—eye-stretching, soul-satisfying relief from the too-great insistence of the works of man. “Getting away” is an important part of recreation.

Open space and pleasant surroundings where we work and live reduce the necessity to “get away.” Human productiveness need not impair human happiness. Happy people whistle while they work. Our work-day lives need all the release from tensions that we can contrive. The National Parks and wilderness areas can be reached only in vacation times. Trees, shrubs, lawns and flowers take us “back to Nature”

if only momentarily and subconsciously. Trees downtown, a garden in a mall or on a rooftop, are used by thousands of people all day long and part of the night, while similar areas in home grounds serve fewer people for shorter times. The downtown gardens are more expensive but also more valuable in terms of the per capita use that is made of them.

Closer relations between plants and people are everywhere evident today. The shelter magazines are full of ideas to move the outdoors in, and the indoors out. In some cases it is difficult to detect the boundaries between outdoors and indoors. Where a garden extends under an overhanging roof and into a house, a sliding glass wall divides the garden during inclement weather, but in summer there is no boundary. A putting green on a roof; a garden in a court; pools, fountains and planters indoors we have today. It is logical to expect an extension of the best of such ideas to new and larger uses in 2060.

Such ideas are fantastic dreams at first—becoming practical realities only after much human effort. This makes employment for people. Automation reduces employment in one place, freeing people for use in another. The dreamers, the inventors, the designers must be supported by great numbers of people in new jobs: building, servicing, and maintaining the designs now just coming to reality.

Goods of new types will be produced



for the designer and builder. The goods for gardens include many accessories in addition to growing plants: landscape paving, planters, shelters, screens and translucent roofing. But the essence of the garden is the plants. They are elements of a design — a living, moving, growing design. They are perishable like man himself, have a productive life span, must be nurtured solicitously as infants and retired in old age. Much of man's appreciation of plants is this kinship he has to them. 2060 should afford man more time to enjoy this kinship.

LONGEVITY OF PLANTS

The longevity of plants is relative. Some plants we use for a short time while they are in their prime and then replace them. Some are useful for many years. Some outgrow the situation but continue to be useful when moved to a more spacious place. 2060 will probably see more portable plants in larger sizes than we have today. We already have the means to satisfy a limited demand in this direction. And 2060 will probably see more flexibility and portability in man's buildings, so that the buildings will move rather than the more permanent plants.

A shopping center in Palo Alto today gives this impression. It was built in a live-oak grove. Trees stand inside the shops and the doorways, their lower branches displaying the merchandise and the tree tops extending through the roofs. This place gives the impression that not only were the trees there before man moved business into

the area, but that the business man retire before the trees are old.

Another 100 years may see people putting a higher valuation on established long-lived plants than is often the case today. Too often our landscaping is mostly bulldozer type land "scraping." A recent Colorado subdivision development, "Country Squire Estates," destroyed 80-year-old oaks in developing the site. Country squire a century hence may value such trees more highly than the land itself.

INDOORS-OUT

Cook-outs on the patio and overnight camping in the yard will probably develop in a century, to a far more intensive use of home grounds. The land we own with our homes can be a valuable extension of the house. The living, working and service area within the house should have easy access to comparable areas outside. A sundeck adjoining a bedroom, a work area in the yard connected easily to garage workshop and a garden area for family and friends just off a living or family room, makes maximum use of all the property both indoors and out.

The more one speculates upon the possibilities, the more he may dream about 21st century solutions. Sliding glass walls already remove some of the barriers to complete integration of indoors and out. Unroofed central courts we already have. Opaque fences surround swimming pools today, while transparent roofs keep out the "weather" but admit the sun.

Perhaps the 21st century will en

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ose man's entire city lot in some plas-
c envelope — transparent here —
opaque there — colorful, textured and
r-conditioned. Such speculation is not
o fantastic. There is already on the
arket a plastic envelope without walls
r rafters for use as a greenhouse. The
ir-conditioning keeps it inflated. And
e DEW line installations use inflated
lastic domes which have weathered
e arctic storms for years. Tenants
f these domes say they are not difficult
o patch where flying ice has cut them
nd that internal pressure is sufficient
o prevent collapse despite many simul-
aneous punctures.

AUTOMATION IN HORTICULTURE

Since first he shifted a burden from
his own back to that of a pack animal,
man has been thinking up new ways
to get work done without doing it him-
self. Machinery furthered the cause
and now machines are designed to run
other machines. 2060 will see still
more automation. Man works will-
ingly at tasks he likes to do. But when
tasks become chores, he automates the
process and seeks pleasanter tasks.

Pleasant as gardening can be, it also
can become a chore. Many a home
owner today is a slave to his lawn, yet
manufacturers already have full auto-
mation in irrigation and fast and effi-
cient tools for garden maintenance.

Crowded gardens like Disneyland
are well automated today. Irrigation
twixt 2:00 a.m. and dawn sprinkles
lawns, bubbles water into shrubberies
and flower beds and automatically exe-

cutes a pre-planned program to water
some things more than others, some
daily, others less often.

Many who say today they can't af-
ford automatic sprinkling for the lawn,
may soon feel they can ill-afford to be
without it. Large installations have
already shown that the savings in cost
of water alone has paid for automatic
as compared to manually operated un-
derground sprinklers. And a little re-
finement of existing equipment will
even do away with the timing device in
favor of moisture-sensitive elements in
the root zone which operate the system
upon the plant's demand by sensing the
relative wetness and dryness of the soil.

Even the good earth is being exten-
sively modified, amended, conditioned
and literally tailor made specifically
for intensive uses such as putting
greens, planters, and other container-
grown plants. Such special soil mix-
tures are continually improving the en-
vironment of the root zone of plants
and minimizing factors which might
limit growth to anything less than the
maximum capability of the plant.

The assembly line has been a symbol
of our rising standard of living. We'll
doubtless see de-assembly lines in far
less than 100 years for the by-products
of man's industrial aggressiveness.
There is a crying need today for such
de-assembly lines as would make the
auto graveyard disappear. Much open
space will be reclaimed for better uses
and improved landscape when old cars
can be made to disappear as fast as
they were manufactured.

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Man changes the landscape in many ways. His factories destroy the natural vegetation and use up open space. But enlightened industrialists are anticipating the problem. Many communities which frowned upon industry as a destroyer of the landscape, today are welcoming industry with open arms. The reason is that much blighted landscape of the past has been reclaimed by industry and developed into industrial parks which are a real asset to the appearance as well as the business of a community. Piles of junk and trash and unsightly acres of storage for long-unused equipment are rapidly becoming a thing of the past.

NEW PLANTS

Plants, like people, have genetic characteristics. Unlike people, many of the plants of horticulture have long been propagated by dividing the old plants rather than planting seed. There is a potential for variation in many of the plants of horticulture which is unexplored. Hybridizing and selecting new forms which could be done, has been neglected because vegetative propagation is much faster, easier and cheaper to do.

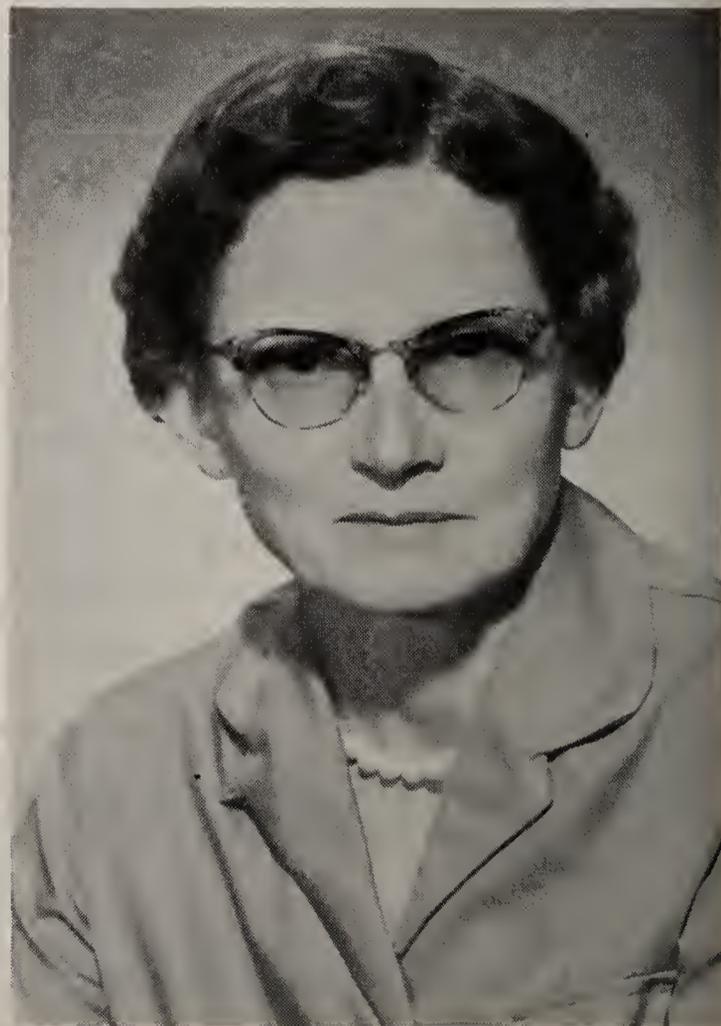
Our descendants of the 21st century could have plants of types and varieties we have never seen—serving purposes we have not yet even imagined.



MISS DURFEE RESIGNS

MISS BERTHA DURFEE resigned her position with the Denver Botanic Gardens at the end of September. It is difficult to imagine this institution without her. She has been connected with its development during most of the years of its existence. Although she was listed as Clerk-Stenographer on the roster of the City and County of Denver, her services extended far beyond what was indicated by her official title.

In addition to being proficient in secretarial work, she is a professional horticulturist and an ardent botanist. These special qualifications enabled her to keep meticulously accurate plant records, to participate in the information service which the Denver Botanic Gardens renders to the gardening public and to name plants brought to Botanic Gardens House for identification.



Miss Durfee is a graduate of James-
town Business College, Jamestown,
New York. Following her graduation
she held various clerical positions.
During World War II she served in the
WACS, with a year and half of foreign
duty in the South Pacific. She holds a
Bachelor of Science Degree in Floricul-
ture and Ornamental Horticulture from
Cornell University. She worked a short
time at the New York Agricultural
Experiment Station, Geneva, New
York, and was Graduate Assistant in
Horticulture at Kansas State University.

With her mother she moved to Den-
ver in 1951 and took a clerical position
at the firm of Irving P. Krick Associ-
ates, Inc. From 1953 to 1955 she was
employed by the Colorado Forestry
and Horticulture Association and in
1955 began working for the Denver
Botanic Gardens, where she continued
until her resignation.

Because of her unique educational
background and experience, comprising

clerical and plant science work, her
resignation leaves a gap in our organi-
zation that will be difficult and perhaps
impossible to fill. Together with her
mother she has returned to her native
state of New York. Her future plans
are not yet definite. She is considering
entering Rutgers University to com-
plete requirements for her masters de-
gree. However, if she finds a technical
position to her liking in some Arbore-
tum or Botanic Garden she may take
up that type of work.

Officials and members of the Denver
Botanic Gardens express to Miss Dur-
fee their sincerest thanks for her long
and faithful service and extend to her
their best wishes for happiness and
success in whatever work she may un-
dertake. It is hoped that some time in
the future it may be possible to entice
her to rejoin our staff in some capacity
more in keeping with her horticultural
and botanical training.

A. C. HILDRETH, *Director*



Designing The Fall Garden

M. WALTER PESMAN

ENVY may not be a high motive in
garden design. At times, however,
it may be quite effective.

If our neighbor's garden is showing
up so much better than our own just
now, it may be just a question of the
use of good fall color. A few simple
observations may be the making of
improvement of our own.

Any good landscape architect will
insist that material by itself does not
make a good garden, no matter how
excellent it may be. In fall then, the
colors that we envy in the neighbor's
place and that we lack in our own,

may not in themselves be the secret.
Yes, of course, we should take the op-
portunity, at this season, to make a list
of the best material to furnish breath-
taking fall color. Read the article by
Frances Novitt; it will give some good
hints in this. Make a list of the plants
that are striking in their color — add
the ones lacking in your own garden.
That is the beginning — and a very
important beginning.

Equally important is the proper lo-
cation of this plant material. Fall color
is like medicine: a little may be essen-
tial, but that does not mean that a lot

of it is still better; it may be quite harmful in fact. (Did you ever take an overdose of liver pills, or quinine, or even of tranquilizers?)

A sumac in autumn may "make" a garden if placed in just the right spot. A lot of sumacs scattered promiscuously may do nothing more than cheapen the effect and may be compared to excessive jewelry on an otherwise charming lady. A spot of bright fall color in the garden where a focal point is needed is like a single diamond in just the right place.

A group of evergreens may be the very background needed for such a spot planting. We might call that spot the highlight for the fall garden; it is not quite enough. For a rhythmic effect repeat the color with just a single bright fall shrub, far enough away not to compete, close enough for the eye to be pleased by it. We might call that a case of dominance and subordination. It always works!

Well, that is the essence of fall color: a well-considered focal point, with a

repeat for the rest of the garden, apparently accidentally dropped in. The rest is added refinement.

Since we have the choice between trees and shrubs in fall color, why not have some variety on that score? Again consult the list. Force the eye to look both up and down.

Orange scarlet and deep crimson do not combine well. Winged euonymus is breathtaking in its fall dress, but may well quarrel with other shrubs in its immediate neighborhood; give it enough distance.

Remember that such vines as Engelmann ivy may transform the entire house into a brilliant spot; is there enough unchanging green to act as a foil? Green is a true pacifier in the garden, as is white in the flower border.

One more idea in conclusion: Let us not be carried away by beauty, however magnificent, during *one* period only. If our garden lacks spring charm it is not too late to plant a hundred tulips or other early bulbs.

For color during winter see the next issue of "The Green Thumb."

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Dried Materials And How To Use Them

RUTH LEWIN

CREATING an arrangement from your own collection of dried material is a tonic to charm you from routine day-to-day tasks. Once you become aware of the variety of colors, patterns and shapes to be found in cones, pods and flower forms, you are caught in a magic spell.

In designing swags or autumn centerpieces, use material varied in shape, size and texture. Here you can bring about nature's contrast and balance where sturdy foliage is often combined with smooth-surfaced, but patterned, rounded cones in clusters or leaves of bold outline with ruffled flowers.

A garden is a source of intriguing materials for all sorts of dried decorations. It is challenging to try to discover an unusual form or color to add to your collection for later enjoyment in a design.

Select mature heads of golden yarrow and hang upside down in a dark closet to dry. When Sweet William pods have frilled cups full of black seeds, save some for planting and others for covering bases such as tree forms.

Gather lilac seed-pods when they are fully formed but still green and also later when they have turned brown and

are fully open. Use both for miniature wreaths as well as for matchbox decorations.

As soon as static flowers are fully open, gather some and hang them in a paper bag. Shield them from light for a week or two. They add color to small arrangements and are effective in baskets when combined with other colors.

Reddish rose hips with lavender or pink static make a pleasing combination. Use orange safflower or deep yellow yarrow with creamy or light tan colors. Oriental Poppy pods, with their ridged and scalloped hats, add to fine design in wreaths, corsages, lapel pins and baskets.

Bachelor's Buttons can be cut at any stage. After enjoying a bouquet in the house, remove petals and store remaining pods; or when buds show a tip of color, dry by hanging upside down in a paper bag, or by covering with fine sand or powder. When buds are stored without covering they will open and make a delightful frill of clear, neutral color around the tight inner petals. These are wonderful in miniature wreaths and other small arrangements.

Bells of Ireland may be dried standing upright in containers or hung up-

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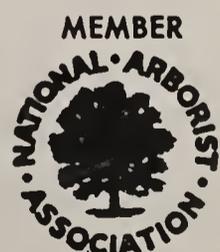
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White Tapers

side down in total darkness. Tinted slightly with green color and placed in glycerine they will have a more natural appearance.

The list of flowers for dried arrangements is endless. After an arrangement made with fresh flowers has been enjoyed in the house, interesting flower centers can be dried if faded petals are removed. Scabiosa is a good example.

Other suggestions for plants to dry include: Agapanthus (pods), Cockscomb (flower), Cupid's Dart (silvery blossoms surmounted by a tuft of blue), Globe Amaranth (clover-like heads), Honesty or Money Plant (silvery seed pods), Gazania (pods left as puff balls), Lamb's Ears (leaves and spikes of soft gray whorls) and Love-in-a-mist (pods that change from green to purple), Poppy (both perennial and annual — green pods must be dried in darkness), Castor Bean (seed pods and stalks — gathered green they turn slate

Materials:

Miniature Floral Tapers

Miniature Cat-tails

Chrysanthemum (Irene)

Dried Baby Breath (Pink)

Dried Glycerined Leaves

Bittersweet

Dried Wild Artemisia

Iron Stone Footed Vase (white)

Miniature Brass Candelabra

color), and Rose hips. Gather rose hips when they have turned gold or red. The color can be intensified by hanging them in the hot sun for a few weeks.

Trees and shrubs worth considering as sources of dried material are: Saint John's Wort (colorful leaves and pods), Juniper (foliage and berries), Hydrangea (flowers), Buckwheat Bush (dried seed clusters), Mountain Mahogany (branches with plumed seeds), Red Bud (seed pods), Tree of Heaven (seed clusters) and Oak (leaves).

Those who travel in warmer climates should watch for: Hakea (pods), Wisteria (tendrils), China Berry (berries — golden yellow and rich brown), Dragon Tree (orange-colored leaves — bases for baskets and swags), Oleander (pods) and Azalea (leaves and pods). The latter two shrubs are often grown as potted or tubbed house plants in this area.

Materials:

- Buddha Candle
- Glycerined Leaves of Rubber Plant
- Pumpkin hollowed and Filled with Grapes
- Dried Golden Plate
- Dried Corn Tassel
- Cane Tassel
- Peppers — red and green
- Autumn Leaves
- Apples
- Gourds
- Bananas
- Oranges



The Fat Buddha

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Pete

? ? ? ?

Ponders

? ? ? ?

Dear Pete,

Being a do-it-tomorrow gardener, each spring I awaken to find my garden lacks color — all because I meant to plant tulips last fall. I'd love some of those exciting fringed tulips I saw at Botanic Gardens last spring. May I still plant them? Can you supply the names?

MANANA

Dear Doit Now,

Hairdoes and surreys aren't the only items boasting a fringe on top these days. The recently developed fringed tulips were supplied in mixture. I regret we don't have the names.



As to planting time, *tempus is fugit-*ing! If the garden shops still have the bulbs you can plant tulips as late as December 1 or as long as the soil is workable. It is better, however, to plant all the so-called "Dutch bulbs" as soon as they are available in the market. Such bulbs do not improve by aging on dealers' shelves.

Dear Dotted Eyes,

My chrysanthemums die in the center. Is this common?

HEARTLESS

ear Heartless,

To be vigorous, chrysanthemums must be kept young at heart. Cushion types seem less susceptible to your trouble. Each variety seems to have its own division schedule. According to Doc Hildreth, who has probably introduced more newcomers and served as a pediatrician to more young chrysanthemums than any other person in this area, some benefit from annual or biennial root division while others get along with less frequent division. Divide the plants as early in the spring as practicable by separating the old plant into two, four or more sections with a knife or spade. Discard the dead or weak center part of the lump, replant the vigorous division and water immediately.

DOTTED EYES



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Men's Garden Club of Colorado
The Denver Rose Society
The Garden Club of Denver
The Orchid Society
Around the Seasons Club
The African Violet Council

Just mail in the list of names of your new officers together with their telephone numbers and we will keep them on file as part of our information service. Send them to:

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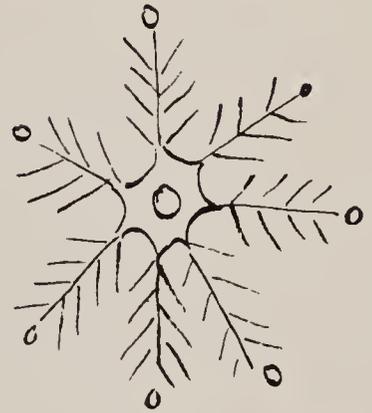
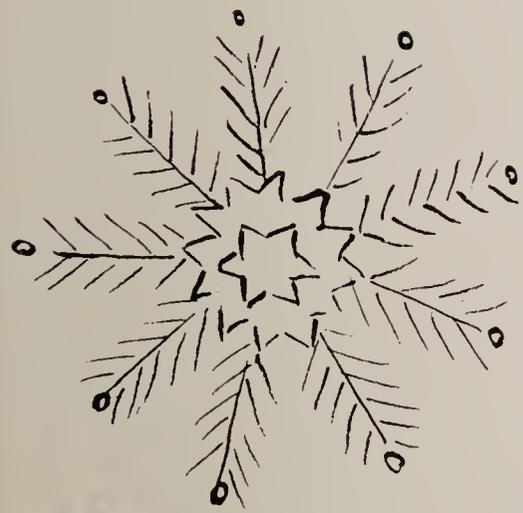
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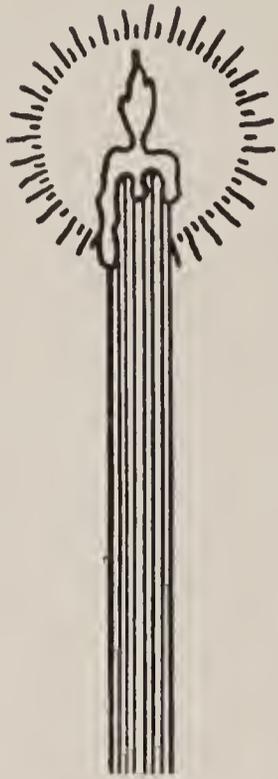
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CALENDAR of EVENTS

Every Saturday Morning — 9:10 a.m.

KLZ Radio. The Green Thumb

Program by Herbert Gundell,

Denver County Agent

Every Saturday Afternoon — 4:30 p.m.

KLZ-TV Channel 7. The Week-end

Gardener by Herbert Gundell

Fourth Sunday — 2:00-4:00 p.m.

Colorado Cactophiles

AT BOTANIC GARDENS HOUSE

DECEMBER

1st — Fri., 2:00 p.m. Floral Art Study

Club Tea and Christmas Display

2nd — Sat., 1:00-5:00 p.m., Floral Art

Christmas Display

3rd — Mon., 2:00 p.m., County Agents

Meeting

7:30 p.m., Swingle Study Group

4th — Wed., 10:00 a.m.-12:30 p.m.,

Colorado Federation of Garden

Clubs State Board Meeting

7:30 p.m., Botany Club

5th — Thurs., 7:45 p.m., Orchid Society

6th — Fri., 12:30 p.m., Mountain View

Garden Club

11th — Mon., 9:30 a.m., Botanic Gardens

Junior Committee. Making

Christmas Garlands

10:00 a.m., Judges' Council

12th — Tues., Herbarium Study Group

13th — Wed., 7:30 p.m., Landscape

Contractors

14th — Thurs., 10:00 a.m., "Around the

Seasons" Meeting followed by

Holiday Buffet

19th — Tues., 9:30 a.m., Garden Club of

Denver. Making Christmas Trees

for Hospitals

20th — Wed., 9:30 a.m.-12:30 p.m., Fun

with Flowers Workshop

27th — Wed., 7:30 p.m., Landscape

Contractors

JANUARY

2nd — Tues., 12:30 p.m., Mountain View

Garden Club

3rd — Wed., 7:30 p.m., Botany Club

4th — Thurs., 7:45 p.m., Orchid Society

8th — Mon., 10:00 a.m., Judges' Council

9th — Tues., Herbarium Study Group

10th — Wed., 7:30 p.m., Landscape

Contractors

DENVER BOTANIC GARDENS NOTE PAPER AVAILABLE — send your personal notes to your friends on
 our attractive note paper with Botanic Gardens House etched on the front. Available from Mrs. Vincent,
 Botanic Gardens House, 909 York Street. \$1.00 per box.

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NOTES AND NOTICES

BONSAI EXHIBIT — The annual Bonsai Show was held October 8 and 9 at the Denver United States National Bank Building, with more than one-thousand entries. Plant materials used included evergreens, conifers, deciduous shrubs and trees, bamboo and citrus trees. The bonsai ranged in height from miniatures four to ten inches to evergreens up to two and a half feet. The beautiful containers and natural wood bases added much of interest to this outstanding show, which was sponsored by the Denver Bonsai Club. Mr. George Inai is President of the club, Mr. George Fukuma is Vice-President, and Mr. Shiichi Fukuhara is Advisor. A Japanese floral art exhibit with many interesting materials and containers was sponsored by the Denver Floral Club under the direction of Mrs. Yuri Noda, Mrs. R. Nakataska, and Mrs. T. Takamatus.

SCIENTISTS MEET IN DENVER — The American Association for the Advancement of Science will meet this year in Denver, December 26 to 30, inclusive. In the Association's 113 years of existence this will be its 3rd Denver Meeting. Others were in 1937 and 1901. All the principal sciences will be represented, including a strong section of Botanical Sciences. About 1,800 papers in various scientific fields will be presented. The latest science films will be shown and numerous scientific exhibits will be on display. The public is invited. Registration fee for the entire session is \$3.00 and \$1.00 for the registrant's spouse or child over 15. Registration will be in the Hilton Hotel.

NEW STATE PARKS DIRECTOR — Mr. George T. O'Malley has been appointed Director of the Colorado State Parks and Recreation Board.

NEW STAFF MEMBER — Mrs. Charles Pincoski has been appointed to fill the clerical position recently vacated by Miss Bertha Durfee in the Denver Botanic Gardens. Mrs. Pincoski entered upon her new duties on the sixth of November.

BOOKS AND BOOKLETS FOR SALE

The following publications are available for purchase in the office at Botanic Gardens House, 909 York Street:

Around the Seasons by S. R. DEBOER.....	\$1.00
Colorado Evergreens by ROBERT E. MORE.....	2.50
Colorado Wild Flowers by HAROLD and RHODA ROBERTS (a museum pictorial).....	1.25
Fruit Key (identification of plants by their fruit) by WILLIAM HARLOW.....	.60
Handbook of Plants of the Colorado Front Range by WILLIAM WEBER.....	5.00
(Also available in paper bound edition).....	3.00
How to Grow Good Gardens in the Sunshine States by GEORGE KELLY.....	Spiral 3.25
	Regular 3.00
Meet the Natives by M. WALTER PESMAN.....	Spiral 3.60
	Regular 3.00
Nature Games by PAUL W. NESBIT.....	.60
Planning for America's Wildlands by ARTHUR H. CARHART.....	2.50
Plants of Rocky Mountain National Park by RUTH ASHTON NELSON.....	1.10
Saga of a Forest Ranger by LEN SHOEMAKER.....	5.00
The Secret of the Green Thumb by HENRY and REBECCA NORTHEN.....	5.00
Twig Key (identification of trees and shrubs in winter) by WILLIAM HARLOW.....	.60

ARTICLES OF LASTING INTEREST TO TODAY'S GARDENER

In past issues of The Green Thumb are several articles of great interest. Copies may be obtained from Mrs. Helen Vincent at Botanic Gardens House. Among such articles are:

Lilacs for Colorado by MILTON J. KEEGAN — December, 1944.....	.10
(Beautifully illustrated)	
Flowers and Gardens of the Central City Region — July-August, 1946.....	.50
(By several authors — well illustrated)	
Hawthorns by M. WALTER PESMAN — May, 1950.....	.10
(Very descriptive and well illustrated)	

CUT YOUR OWN CHRISTMAS TREE

T. C. PENDER¹

A DO-IT-YOURSELF, cut-your-own-Christmas tree project under the supervision of the U. S. Forest Service has been an annual affair on the Roosevelt National Forest west of Boulder near Sugarloaf Mountain since it was started in 1953. A total of 33,205 individual Christmas trees had been taken from the forest by the end of the 1960 Christmas season.

The project has been accepted by the public with a great deal of enthusiasm and has become a traditional winter outing for family groups who return year after year to cut their trees. It is a recreation activity in which the whole family can participate. In fact, almost four out of five cars going to the area contain children, many have dogs, a few have cats and in one instance a parakeet was observed.

Some hardships and inconveniences are encountered. But in spite of usually high winds with drifting snow and cold, waiting in long lines of cars and, finally, walking over what must seem miles of steep snow-covered slopes to locate and cut a tree, everyone seems to have a good time. Nor is the work over when the tree is cut. The tree must be skidded, dragged, rolled or carried to the car and in some way fastened to the car. Then there is the process of getting out of the area. This usually requires putting on a set of tire chains and waiting to have the tree tagged when the end of the area is reached. Often, the tree finally taken home is of lower quality than could have been purchased at a commercial lot at certainly considerable less total cost. Nevertheless, the families have a day's outing, perhaps an adventure and lots of fun. And that's why many come back year after year.

The program was initiated in 1953 by Ranger W. S. Beckley as a project to thin dense stands of trees, and to provide families an opportunity to select, cut, and take home a Christmas tree. In the initial year only 792 trees were cut. Since that time the program has grown in popularity and between seven and eight thousand trees are now being removed annually.

The cutting area is a tract of some 600 acres of a generally dense stand of Douglas fir ranging in size from very small saplings to trees six to ten inches in diameter. The Sugarloaf area is well adapted to a project of this kind. The cars are routed from Boulder one way and return to Boulder by a different route. They move through the cutting area in only one direction. The road is relatively narrow in places and some traffic jams occur during the peak of traffic. Sometimes it has been necessary to turn traffic back because of the lateness of the day and traffic is temporarily tied up for one cause or another. Our rangers dislike to do this, especially when there are several children in a car. It's a great disappointment to them. But we cannot take a chance if it's late afternoon and there are too many cars on a mountain road.

¹T. C. Pender, author of this article, is in charge of the Boulder District of the Roosevelt National Forest. He attended Denver Public School, took forestry at Colorado State University and had graduate work at the University of Michigan.



Their Christmas Tree Cut and Loaded

Permits are sold for the number of trees desired as each car enters into the cutting area. A sheet of instructions covering the rules under which each tree is to be selected and cut is also given out at the entrance to the area. The tree is then selected and cut somewhere in the area. As the car leaves the cutting area, the tree or trees are inspected and a tag is attached to each tree for which there is a permit.

The area has been placed under management to produce Christmas trees under a sustained yield program. A survey early in the program provided an estimate that 200,000 trees could then be cut from the area. Many of the trees, however, because of crowding conditions are inferior for Christmas trees. The quality of many of the trees for Christmas trees will increase as the thinning process continues through the cutting of Christmas trees. Some trees, however, will never make any kind of a tree for Christmas or other use and crews are employed to remove them and to assist with the thinning process.

In some parts of the area, trees have grown too large for Christmas trees. In these stands the larger trees will be removed through commercial cutting, if necessary, to provide space in which to grow trees suitable for Christmas trees. An occasional large tree in stands of smaller trees will also be removed in order to stimulate fuller growth in the tops of smaller trees. In some cases, the larger trees are cut and topped for Christmas trees during the annual sale. While this practice might appear inconsistent with good forest management, it assists in the planned program for the area. From the money angle, the larger tree topped for Christmas returns one dollar. The same tree if cut for mine props or

costs under commercial sales returns approximately eighteen cents, or, if left another 90 to 100 years to grow to maturity it would return approximately seventy-five cents at current stumpage prices for sawtimber.

It will take several years to get the area into condition for the maximum production of Christmas trees. A sustained cutting of ten thousand trees annually will be possible with a cutting cycle of between 20 to 25 years. Natural reproduction of Douglas fir is generally good in locations where stands have been thinned. Seed trees are being marked to be left uncut to provide for natural seeding. Vacant spaces within the stands and treeless areas on open slopes are being planted annually. When these areas are established, planting will be used to fill in spaces where natural reproduction is not satisfactory.

It is gratifying to the Forest Officers in charge of the project that so many families do make use of the opportunity to get their own Christmas trees. About half the people are from the Metropolitan Denver area while the rest come mostly from Northern Colorado Communities and as far away as Sterling and Ft. Morgan.

Please Repeat That Question

LEE CHAMBERS

TO PLANT OR NOT TO PLANT, that seems to be the question. Whether 'tis nobler to suffer the grotesque butchery necessary to clear high lines or to avoid the butchery by not planting trees at all.

I am sure that in your travels around Denver you have seen the graceful urn-shaped elms which readily grow up to 80 feet high and produce a luxuriant foliage that results in the more than welcome shade and coolness on our colonnaded avenues. You have also seen the beautiful soft maples that line some of our older streets with a graceful spread of their 70 to 80 foot crowns that enable them to meet over the middle of the street. The grace and symmetry of a well cared-for shade tree is



Hawthorn

most apparent in the dormant leafless season.

Contrast the lacy tracery of these trees with the ones that you see along Sixth Avenue west of University Boulevard, or any others that have been repeatedly chopped off to maintain clearance for high voltage wires. These trees have all the grace and beauty of a worn-out whisk broom. This is one of the problems that also must be faced in landscaping the newer parts of the city in which most of the overhead wires oc-



Photo by Public Service Co. of Colorado
Tall Trees Under Power Lines Necessarily "Butchered"

cupy an easement at the back of the property where, again, trees may interfere.

To plant or not to plant, that seems to be the question. But somehow it seems to me that there should be another alternative. Perhaps with a little foresight and a talk with someone familiar with local conditions and trees, one could find a compromise — trees that do not need butchery to retain a size compatible with overhead wires. Some of these smaller trees are very desirable. For example:

Amur maple, *Acer ginnala*, colors beautifully in the fall, has a bright green typical maple leaf and yet grows to about a maximum of 25 feet in height. Another advantage of this miniature maple is that the wood is quite strong

in contrast to the brittle woods of some other maples.

Rocky Mountain Maple, *Acer glaberrum*, is somewhat smaller than *A. ginnala* but similar in other respects. It does not have the red fall color.

Crabapples, *Malus sp.* — So much has been written about the crabapples that it would be redundancy to describe them here. They are excellent low trees.

Hawthorns, like people, come in all shapes and sizes and should be selected carefully for the site they are to occupy. Cockspur Hawthorn, *Crataegus crusgalli*, and Washington Hawthorn, *C. phaenopyrum*, could be used under power and telephone wires.

Golden Rain Tree, *Koelreuteria paniculata*, is another tree that comes

o mind. This is a round-headed tree about 30 feet high with a compound leaf. It produces many flowers in 8-inch panicles in July and August which result in Japanese lantern-like fruits with thin, papery walls. Very few of these trees are in evidence in Denver, but I think we shall see more of them.

Sumac — there are two tall sumacs which do well in this area: The Smooth Sumac, *Rhus glabra*, grows about 10 to 20 feet high and has smooth bark; the Staghorn Sumac, *Rhus typhina*, grows to 30 feet and the small branches have a velvety hair that resembles the velvet of a deer's horn. Hence, the name. Both of these species have a variety called *laciniata* in which the leaflets are deeply cut with fine teeth. Two of the attractions of these sumacs are the brilliant red coloring in autumn and the prominent terminal panicles of fruits.

While we are trying to find trees that will fit under overhead wires, let's not overlook the evergreens. Here is a wide field. For example, the pines:

Dwarf Stone Pine, *Pinus pumila*, usually a shrub about 10 feet high.

Swiss Mountain Pine, *P. mugo*, which can grow as high as 40 feet but our cultivated forms usually are shorter, can easily be kept under control by regular pruning.

Piñon Pine, *P. cembroides* var. *edulis*, may grow to 50 feet high. Piñon Pines are very popular nowadays. They respond to pruning in a most satisfactory way.

Another suitable group of evergreens are the familiar junipers. Here you can find almost any height you want. You can start with the Eastern Red Cedar, *Juniperus virginiana*, which grows to 100 feet high, and come all the way down to the Creeping Juniper, *J. hori-*



Photo by Public Service Co. of Colo.
Broken Limb on Power Lines

zontalis, which creeps along the ground. Some of the best members are:

Rocky Mountain Juniper, *Juniperus scopulorum*, which grows about 35 feet high.

Chinese Juniper, *Juniperus chinensis*, the commonest form of which is Pfitzer Juniper, *J. chinensis* var. *pfitzeriana*, that usually reaches a height of about 5 feet. But there are varieties of this juniper in cultivation that grow 15 feet high and wild forms that sometimes reach 60 feet in height.

The preceding list does not include all the trees that could be used under high lines but is only an off-hand listing of those that I meet quite frequently around town. There have been numerous books written on this subject and I would recommend that you check the Helen Fowler Library for references in this field.

So you see! To plant or not to plant, that is *not* the question. The question is "What to plant and where."

The 1961 Orchid Show



The Denver Orchid Society held its second annual orchid show October 21 and 22, at Botanic Gardens House. Approximately 1500 people attended.

On display were hundreds of blooms, representing several genera of orchids, including Phalaenopsis, Dendrobium, Odontoglossum, Vanda, Oncidium, and the familiar Cattleya. About 20 members had exhibits in the show. No prizes were awarded, as the show is not competitive.

The Denver Orchid Society has 56 members. Officers are Mr. Franklin N. McClelland, president; Mr. Klaus Abegg, vice-president; Mrs. George Dreith, treasurer and Mrs. Donald O. Sullivan, secretary.

Meetings of the Society are held at Botanic Gardens House, 909 York Street, at 7:45 P.M. on the first Thursday of each month. The public is always welcome.

Franklin N. McClelland



A Few of Many Fine Exhibits at the Show

The article on garden color in winter promised for the December issue will appear in the Jan.-Feb. issue.



Dwarf Conifers in the Arnold Arboretum

What the Arnold Arboretum Is

DONALD WYMAN

PROFESSOR CHARLES S. SARGENT, the first Director of the Arnold Arboretum, described this great garden of Harvard University as "a museum founded and carried on to increase the knowledge of trees," and directed "not merely as a New England museum but as a national and international institution as anxious to help a student in Tasmania or New Caledonia as in Massachusetts."

Today the Arnold Arboretum stands as a living monument to the man who devoted more than half a century to developing it into a center of tremendous scientific value as well as of dis-

tinctive charm. To the generosity of James Arnold, a New Bedford merchant, the Arboretum owes its existence. But to Sargent belongs the credit of transforming a deserted farm into one of the world's greatest living collections of hardy shrubs and trees.

Beautiful at all times, the appeal of the Arboretum is irresistible in the spring when the cherry blossoms, forsythias, magnolias, lilacs and azaleas usher in the gay season. Singly, in couples, by families, and in groups of varying size and interest, visitors come to share the color, fragrance and sylvan peace of the garden from which motor

traffic is excluded. It is not unusual to have fifty thousand nature enthusiasts in the Arboretum on "Lilac Sunday," or when the cherries and azaleas are at their height of loveliness. School children, Scout troops, garden clubs, sight-seers and countless others broaden their appreciation of nature through visits to this park.

The Arboretum is also an experiment station in horticulture, cooperating in various ways with agricultural experiment stations throughout the United States and Canada. There is a particularly close affiliation with other divisions of Harvard University, such as the Bussey Institute, the Cabot Foundation, the Departments of Biology and Landscape Architecture and with other neighboring universities. It is also a service center which supplies valuable information to landscape architects, nurserymen, park administrators, foresters and home owners interested in hardy shrubs and trees throughout the entire country. It is interesting to note that the daily correspondence of the Arboretum staff members is as much with individuals thousands of miles away who have asked for information, as it is with residents of Massachusetts. It is a clearing house for seeds and plants which are sent to it from every part of the world where hardy plants grow.

Nearly 6,000 kinds of trees, shrubs and vines may be found in the Arboretum. Its library, today containing over 51,000 books and 18,000 pamphlets, is probably the best special collection of books on woody plants outside the British Museum, and its world-famous Herbarium contains over 726,000 specimens at the present time.

The Arboretum is controlled by the President and Fellows of Harvard University acting as trustees under the will

of James Arnold. It is financed entirely from endowment income and from annual gifts for immediate use. The present staff includes 25 individuals, exclusive of grounds crew and office help. It is open to the public every day in the year from sunrise to sunset.

EARLY HISTORY

In March, 1872, Harvard University set aside 125 acres of the Bussey Farm for the new Arboretum. From time to time other tracts of land were added until the total area today is 265 acres in Jamaica Plain, with an additional 100 acres in Weston, thirteen miles away. As only a small part of the potential number of specimens which might be expected to withstand the climate were at that time to be found in any collection, it was necessary to go outside of North America to the far corners of the earth to procure the thousands of exotic plants which make the Arboretum an important scientific station. The search, which still continues, has included every country in Europe, the Caucasus, Eastern Siberia, China, Korea, Japan, Formosa, Australia, Indo-Malaysia and Africa from the equator south.

In November, 1873, Professor Sargent, then thirty-two years of age and Director of the Harvard Botanic Garden, was appointed Director of the Arnold Arboretum. Under the terms of the Arnold will, which set apart two-thirds of the income from the bequest to accumulate until the fund reached \$150,000, he had only \$3,000 a year with which to convert a farm, partly covered with native trees, into a scientific tree station. The property had excellent possibilities, with several hills and meadows, a brook, small ponds, a rocky cliff and a grove of splendid native hemlock, but there was a great need of cultivation. The work of forming a nursery was begun at once, green-



Adult Class in Basic Botany

houses being available for the propagation of the few plants which could at that time be found in the vicinity.

Frederick Law Olmsted, Senior, the noted landscape architect, proposed an idea for making substantial improvements despite the small budget and his proposal was finally accepted. Mr. Olmsted was planning a park system for Boston at the time, and he suggested the possibility of making the Arboretum's land part of the system, the city to build its roads and provide police protection.

Thus the City of Boston took title to the lands of the Arboretum in December, 1882, leasing the whole tract to the President and Fellows of Harvard for a thousand years, at a rental of one dollar a year, "and so on from time to time forever." The Arboretum received all the advantages of perpetual, tax-free ownership of the land and, in return, the University agreed to open the Arboretum to the public from sunrise to sunset during every day in the year, while reserving entire control of the

grounds with the exception of the drives and walks.

THE CONTRIBUTIONS OF PLANT HUNTERS

In 1877 came the first opportunity to obtain American plants not then in cultivation, when Sargent was commissioned by the Federal government to prepare a report on the forests and forest wealth of the nation. He travelled into every wooded region from the Atlantic to the Pacific and chose able assistants from various parts of the country. A number of these assistants continued to supply seeds and specimens and secured for the Arboretum information about the trees and shrubs in their native habitats. Close contact with all the important European and American botanic gardens and nurseries enabled Sargent to exchange plants and obtain many additions to the garden. The first direct consignment of seeds from Eastern Asia, sent from the Agricultural College at Sapporo, in northern Japan, reached the Arboretum

in December, 1878. Since then, it has assembled a notable collection of Oriental trees and shrubs, many of the most ornamental coming as the result of the travels of Ernest Henry Wilson, an Arboretum staff member from 1906 until his death in 1930. Today correspondents from all over the world are still sending in plant material, some of which is new to America. Some 3,000 woody plants never before grown in America have been introduced here as a result of the Arboretum's efforts — an imposing record!

Simultaneously with the formation of the living collections Sargent built up a rich botanical library and a large herbarium. Besides being a storehouse of scientific knowledge, the Arboretum was becoming a research laboratory for experiments with decided commercial value. In the scientific knowledge of landscape architecture, as well as of timber production in the United States, the Arboretum plays an important part, for here the habits of more kinds of trees can be studied than anywhere else in the country.

INTRODUCTIONS OF THE ARNOLD ARBORETUM

During its 89 years of existence, the Arnold Arboretum has introduced well over 3000 woody plants new to this country, some of them never before grown in gardens anywhere in the world. A majority of these introductions, of course, came as the result of trips to Japan and China taken by E. H. Wilson and the first Director, Charles Sprague Sargent, both of whom took several trips at the turn of the century to the Orient and sent home seeds and plants of outstanding ornamental merit.

It is hard to believe that a plant as common as the Japanese Barberry was once one of the "new" and "rare" plants grown in the nurseries of the Arnold Arboretum, yet such is the case.

Since it was introduced, this plant has proved its usefulness, so much so that it is one of the most common shrubs in our gardens today.

Some of the plants, like the hardy strain of the Cedar of Lebanon (*Cedrus libani*), are the result of particular mis-sions. In this case, the Cedar of Lebanon grown in the warmer parts of the United States never proved hardy under New England conditions, so Professor Sargent commissioned a special trip of collectors in Asia Minor to collect seeds from trees growing naturally at their northernmost source. This was done in the Anti-Taurus and Taurus mountain ranges and trees grown from these seeds have proved perfectly hardy under Arnold Arboretum conditions.

The introduction of the Dawn Redwood (*Metasequoia glyptostroboides*) by the Arnold Arboretum in 1948, makes a fascinating story. This plant, supposed to have been extinct for millions of years, was suddenly found, compared with fossil material and, what is most important, distributed to all corners of the earth by the Arnold Arboretum.

In other cases, the collection of seeds of new plants has been merely a happy coincidence, as was the case of *Kolkwitzia amabilis*. E. H. Wilson saw a plant in fruit, unknown to him, collected some of the seeds, and when the plants were grown in the Arnold Arboretum from this original collection he was agreeably surprised to see the floriferous and highly ornamental plant later named the Beautybush.

Still other plants are the result of accident. The beautiful "Arnold" and "Dorothea" Crab Apples were merely chance seedlings found growing in the Arboretum and at flowering time their value was noted. *Rhododendron obtusum arnoldianum* is another beautiful example of a chance seedling growing



Sorbus alnifolia

introduced by

Arnold Arboretum

actually as a weed among other supposedly more valued plants, but when it bloomed, its true value was quickly noted and, since being introduced, it has proved a popular azalea in many nurseries.

More recently, many new plants have occurred as the result of scientific plant breeding done at the Arnold Arboretum. *Prunus* 'Hally Jolivette,' *Forsythia* 'Beatrix Farrand,' *F.* 'Karl Sax,' *F.* 'Arnold Dwarf,' *Malus* 'Henrietta Crosby,' *M.* 'Henry F. du Pont,' and *M.* 'Blanche Ames' are only a few. These have all been introduced to the trade in this country and abroad, so that home owners and plantsmen in general can eventually obtain them for ornamental planting.

And so it is through a combination

of these means that thousands of plants are now growing in the Arnold Arboretum. Not all of them are of outstanding value. Some very definitely are not, but they are all being grown in this large test garden to determine, over a period of years, which are the meritorious ones. It is interesting to note, since the institution has been in existence for so many years, that there are many valuable "additions" to American gardens still hidden away in the extensive Arboretum collections. Some of these may still prove worthy of commercial distribution. A trip through the grounds helps one to appreciate this tremendous wealth of plant material from which it is still possible to make "new" selections.

(To be concluded)

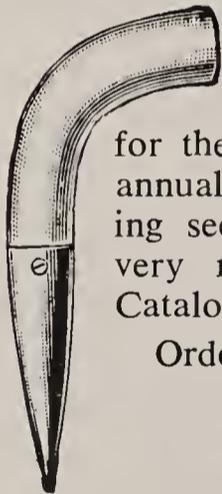
Garden Novelties for NOEL

JULIA H. ANDREWS

A "number one" suggestion for the Christmas gift to the beginning gardener or any High Plains-Rocky Mountain gardener is a membership in Denver Botanic Gardens. Along with other benefits of membership comes *THE GREEN THUMB* magazine written just for gardeners in this area. \$5.00 a year.

Send your check to

Denver Botanic Gardens
909 York Street
Denver 6, Colorado



DIBBER This useful tool is perfect for the gardener with a "yen" for annuals. A "dibber" makes planting seedlings and small bulbs go very much faster. Price \$2.25. Catalog No. S1072.

Order from

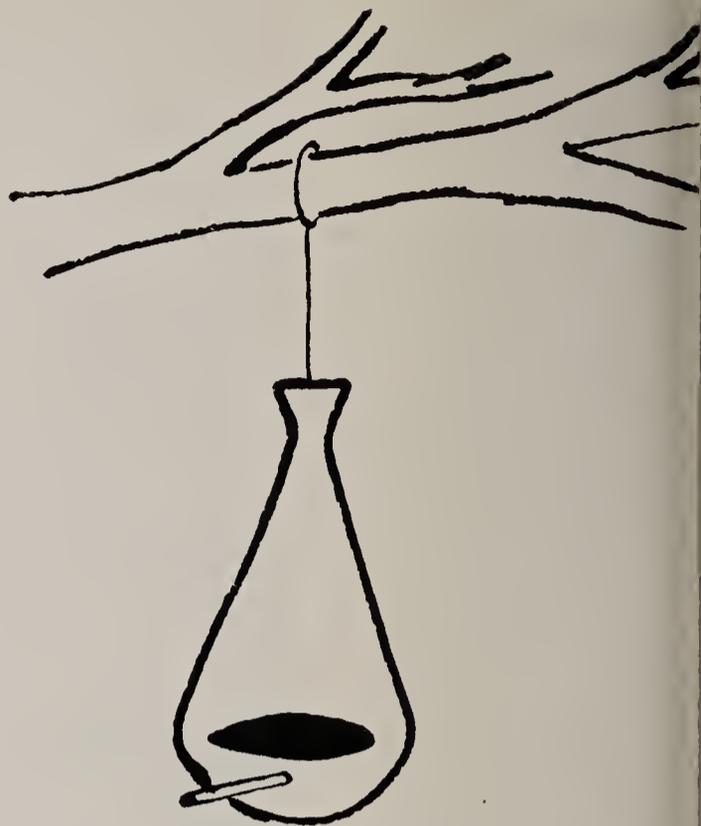
Vaughan's Seed Co.
601 West Jackson Blvd.
Chicago, Illinois

This suggestion is for the indoor gardener with an appreciation of Oriental art. Graceful black and grey prints of timed-radiation pictures of flowers show Nature's geometrical designing. Of particular interest to this shopper was "the Lotus" and "the Tulips."

Write

California Arboretum Foundation, Inc.
301 North Baldwin Avenue
Arcadia, California

for a complete list of the flowers photographed by Dr. Dain L. Tasker.



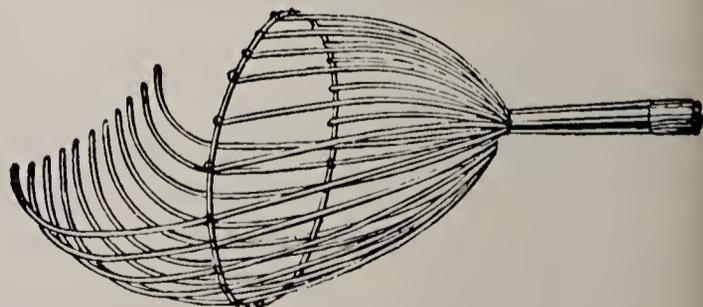
BIRD SHELTER

This sculpture is for the birds! A contemporary bird shelter for the gardener with a flair for the "modern." It is available in natural red terra-cotta, \$10.50; unglazed off-white, \$10.50; glazed matte white or black, \$12.75. Included is a 5 foot length plastic covered wire with which to hang it.

Order from

Architectural Pottery
2020 South Robertson Blvd.
Los Angeles 34, California

WIRE FRUIT PICKER



This gift is perfect for the gardener who has everything, including crabapple trees over the terrace. Pick them before they fall with this wire fruit picker. It fastens onto the end of a pole which is not included. Price \$1.15. Catalog No. S1113.

Order from

Vaughan's Seed Co.
601 West Jackson Blvd.
Chicago, Illinois

There is a practical gardener that prefers to "do-it-himself" on every Christmas list. The *Hosemaster* spray gun was made for him. It comes complete with screw-on plastic bottle in which you pour your insecticides and liquid fertilizers at full strength. Screw the gun on the end of your hose and turn it on. A monitoring device on the gun can be adjusted as you spray for number of teaspoons of insecticide per gallon of water. Easy to control and adequate pressure for spraying small trees. Price \$5.95.

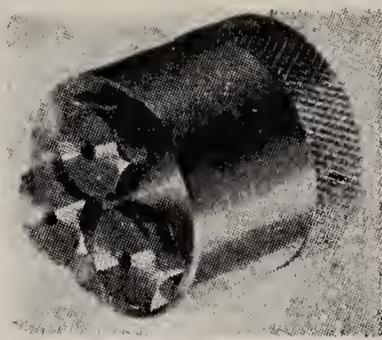
Available at

Cottonwood Garden Shop
4849 South Santa Fe Drive
Littleton, Colorado

For the armchair gardener here is a rust-proof iron bench available in 4, 5, 6 or 8-foot lengths with or without arms. Made by local craftsmen from a Jane Silverstein Ries design for her own garden. It comes in black or white but can be any color you specify for a small extra charge. The 4-foot length is \$75.00 delivered to your door in the Denver area.

Order from

Dufficy Iron Works, Inc.
745 Decatur Street
Denver 4, Colorado



A new nozzle for special watering problems. The "Fogg-it Nozzle" breaks water into a fine mist for watering seed beds, and new plantings. Excellent for the new homeowner with a newly seeded lawn to bring up. Price \$1.95.

Available at

Simpson Seed Co.
1515 Champa Street
Denver 2, Colorado

A complete garden for your window sill. A divided plastic tray for peat pots, potting soil and a packet of herb seeds.

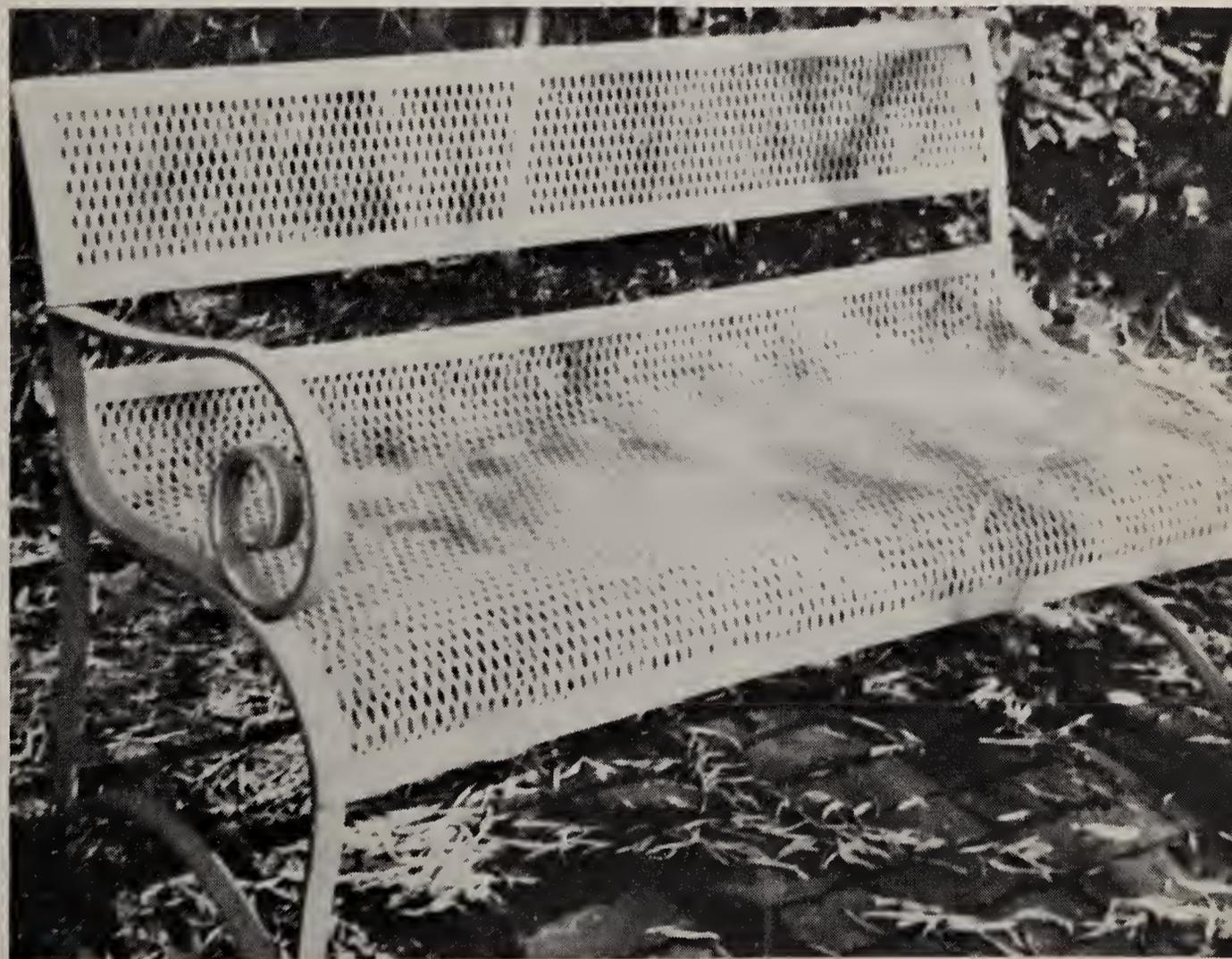
Delux Port-a-Planter includes 1 doz. 1 $\frac{3}{4}$ " square peat pots, 79¢.

Jumbo Port-a-Planter includes 2 doz. 2 $\frac{1}{4}$ " round pots, \$2.49.

$\frac{1}{2}$ Peck Baccto Potting Soil, 59¢.

All available at

Simpson Seed Co.
1515 Champa Street
Denver 2, Colorado



Garden

Seat

Designed

by

Jane

Silverstein

Ries

A gift for the collector. A baby pigeon in bronze or lead 3¾" high. A pair makes a fine accessory for the garden and a delight to any gardener's eye. Bronze, \$45.00; lead, \$6.50, plus shipping costs.

Order from

Kenneth Lynch & Sons
Wilton, Connecticut

A Christmas gift for the grandchildren (or grandparents also for that matter) is a living Christmas tree that can be planted with ceremony the day after and enjoyed many years after. Piñon Pines ready for planting, 3' to 3½' high, \$15.00; 4½' to 5' high, \$23.00.

Other sizes available on request

W. W. Wilmore Nurseries
West 38th Ave. at Wadsworth
Wheat Ridge, Colorado



Metal Baby Pigeon

WINTER IRRIGATION

HERB GUNDELL

Denver County Extension Agent

MIDWINTER, in our climate, is accompanied by a dormant, non-vegetative condition in nearly all our garden plants. Their lifeless appearance, however, does not denote absence of the normal life processes in the shrubs, trees and perennials that surround us.

Actually, at that season, weather conditions would usually interfere with normal plant growth anyhow, and so the resting state of nature is, more than anything else, a defense mechanism against winter damage. Besides, the dormant or resting, non-vegetative period brings about a reorganization of the growth processes within many plants and therefore, it is a time of renewal rather than a season of inactivity.

In our mile-high climate, winter is not normally a season of high precipitation. Certainly we must admit that this has varied from below normal to much above normal. Basically, how-

ever, the winter season subjects our overwintering plants to drying conditions. Actually, the only periods of beneficial humidity that we normally experience in winter are during and just after a snowfall or rain. The periods between storms bring high winds and often extremely dry weather resulting in a more or less continuous process of desiccation and dehydration in many of our garden subjects.

Actually, the only plants that are reasonably well protected from this deprivation and loss of moisture are the herbaceous perennials whose above-ground portions completely die and in which only the root systems and the crowns of the plants carry on from one year to the next.

When we consider winter irrigation, we naturally start with our lawns. Grasses are, for the most part, not very deeply rooted. On the average, lawn turf has roots from 4 to 8 inches deep. Ironically, it is the newly developed

areas on the periphery of Denver — where the soil conditions are generally least favorable — that the root systems of lawn grasses are shallowest and the exposure to high winds and consequent dehydration is greatest.

Only continuous vigilance on the part of the home gardener will protect against abnormal losses of well established lawn areas. One cannot say that lawn watering must be done with regularity; rather it must be done when the need exists. For the most part, in dry winters, an irrigation every four to six weeks will do much to prevent serious damage to the turf grass. In winters when precipitation is normal or above, such irrigations need not be considered except under especially severe conditions of south slopes and steep declines.

Among evergreens, many require regular watering during the winter months. This is truer of the more susceptible and more easily injured broad-leaves than of the conifers. Among those broadleaved evergreens that require careful and well-timed irrigation are the *Euonymus*, *Pyracantha*, *Mahonia* and other rare shrubs. Next in water requirement are the spruces. They have, for the most part, larger root systems than the average broad-leaf evergreen shrubs, but they, too, are in need of occasional watering and will come through a winter in far better condition if this is administered on a reasonably regular basis when the weather is mild and open.

The best method of watering upright evergreens is with a root-watering device that is attachable to a garden hose. This device is equipped with a lance-type point that inserts easily into the earth and permits a well-balanced irrigation at a depth of 30 to 42 inches.

Next in need of water are the junipers, followed by the pines which actually require the least moisture of

all. Pines rarely get so dry in metropolitan Denver that they need to be watered at all during the winter months. However, moisture from normal rain or snowfall is no detriment provided the pines are not located in low areas where moisture tends to accumulate and form a bog.

Deciduous shrubs and trees are not altogether protected from dehydration during the winter season either. They, too, will benefit from occasional watering, either with a garden hose and sprinkler or with a special root-watering device that is commercially available at many garden shops and nurseries in this area.

Among the trees which require more than casual attention are the birches and willows — both trees that naturally grow in moist situations and do not do well in a dry spot at any time. Whenever a birch tree dies back at the top, it is an indication that moisture conditions have not been adequate to maintain the tree in its best condition. Some of the younger birches in this area are very susceptible to such damage, indicating a lack of attention to the trees during the winter season.

Perennials, too, are in need of water from time to time. Some are more shallow-rooted than others, and of course the deeper-rooted ones require watering less frequently than those that have very shallow and fibrous root systems. It should be said, however, that chrysanthemums do not appreciate over-watering; neither do iris, peonies and many others. Our aim should not be to provide a moist condition at all times, but to provide some additional moisture whenever weather conditions indicate that need.

Roses, too, will benefit greatly from an occasional winter watering, especially in the more exposed locations of our region. Spring-flowering bulbs also

will produce more and finer flowers in spring if the bed in which the bulbs are planted has adequate moisture. After all, a moist or wet soil is a cooler soil than a dry soil, and in a cooler soil the bulbs progress less rapidly than in a dry or warm soil. This explains why so many bulbs come up too early in locations near the house, as these spots are frequently very dry and warm.

Special mention should be made of out-door planters in which either evergreens or other perennial plants are grown. Any bed that is raised above the normal soil level of a given area is many more times susceptible to dehydration than an area that is level with the ground. In other words, a planter is just like a flower pot set out of doors. It requires watering more frequently than a normal garden bed. All these planters, especially those in which

evergreens are grown must be watered frequently, perhaps as often as once every 10 to 14 days throughout the winter season. Failure to do so will undoubtedly produce many losses, and will provide additional discouragement to the home gardener.

Two final bits of advice: always disconnect your garden hoses from the outside tap, when you have finished watering. Outside taps, even though they are considered frost-proof will not be protected if the garden hose is connected to them and many broken water lines result from this carelessness. Do not allow garden hoses to be connected to the tap when temperatures are below freezing at night. All sprinkler systems, operated during the winter months, must be thoroughly and completely drained after each use to prevent costly repairs.



Exotics of Colorado

HELEN MARSH ZEINER

THIS CHARMING little European can be found blooming in many Denver area gardens following a few warm, sunny days in December or January. The blooms may, however, appear as early as September or as late as February.

The Christmas Rose, *Helleborus niger*, is a member of the *Ranunculaceae* or Buttercup family, and is really not a rose at all. The individual blossoms do superficially resemble those of a wild rose, hence the common name. They are white, sometimes flushed with rose or purple, and there will be several flowers per stem. They vary in size, reputedly attaining a diameter of 3-5 inches in some species. However, it is

Christmas Rose

not probable that they will reach this size in Denver area gardens, but flowers of an inch and a half to two inches are common.

Helleborus niger is an herbaceous perennial growing naturally in rocky places in Europe. It has long been a favorite in English gardens and probably came to America via that route. Christmas Rose is a useful perennial because it prefers a partially shaded location and can be planted among shrubs. It is not too particular about soil and will grow in most garden soils, but will reach its best development in a soil of loam, coarse sand and humus well worked together. *Helleborus* will tolerate some alkalinity, but prefers a

more neutral soil. It must have good drainage.

Since these plants are natives of an area with more rainfall and more humidity than Denver, they need deep and thorough watering. They also seem to respond well to frequent use of a fine spray of water on the leaves, compensating to an extent for the very dry air.

The Christmas Rose does not take kindly to being moved and it is best not to disturb established plants. When divisions are necessary or when planting nursery stock the work may be done in late summer, fall or spring. Many Denver area gardeners report

that they prefer spring planting. It may take 2 or 3 years for heavy blooms, but the display of long-lasting creamy blossoms is well worth the wait.

Plants sometimes produce seeds which can be planted successfully in the more humid east and would be worth trying here. The plants are also recommended for indoor forcing.

Those who maintain a file of GREEN THUMB magazines can find in the February 1950 issue an excellent article on the Christmas Rose written by Miss Maud McCormick, whose friends remember her as a true devotee of this lovely winter-blooming flower.



'Twas The Night Before Christmas In A Garden Shop

SUE KELLY

ONLY HOURS BEFORE, all was confusion, but now all was quiet and peaceful — rather bare (thank goodness!), but that could be remedied. (I hope that more of you will do your Christmas shopping early and have a better choice.)

What better choice could one make for an avid gardener than the best current information on *what* and *how*? For example, "THE GREEN THUMB" magazine for Rocky Mountain gardeners, is available for only a \$5.00 membership in the Denver Botanic Gardens. It will give twelve months of pleasure and profit — profit in many ways, believe me! Then there is the book, "HOW TO GROW GOOD GARDENS IN THE SUNSHINE STATES," in which George Kelly condenses all local garden information into a nutshell. And how much pleasure can be had on a trip through the mountains or plains with M. Walter Pesman's book, "MEET THE NATIVES"! So much for reading matter.

Now let's see what was on those bare shelves for HIM, HER and THEIRS. I. For HIM: — (I hope this does not sound like too much work, but rather something to make that work easier.)

1. A large basket — utility size — with small things in it, e.g., twistems, knee pads, vine staplers, plant markers and pencils, good serviceable gloves, the best hand pruners available, filter masks for so many uses, packets of rootone, transplantone, winter seeds of both flowers and vegetables — to name a few things.

2. Lopping shears for those big pruning jobs.

3. A garden spade.

4. Rakes — both leaf-rakes and one of those Cavex rakes, new and different and so effective.

5. Little Giant Tools for the young fry — made to their size and capacity — wonderful for the grown-ups, too, especially lady gardeners.

6. A Ross Root Feeder to help make winter watering of trees and shrubs complete and easier.

7. An aerator for next summer. (Perhaps it will not be needed but it is well to be prepared.)

8. Gift certificates, for those who couldn't make a choice for his gift.

II. For HER:

1. A basket — dainty but useful — containing such items as *sharp* shears, gloves, knee pads, tiny “pot-size” hoe and spade combinations, filter masks (I know the ladies do quite a bit of the spraying and dusting), a number of special items for flower arranging, such as needle holders in many forms, hairpin holders, dragon flies, clay, corsage tape, wire in several weights. The basket is useful for carrying things such as cut-flowers from the garden and this recalls the need for Petal Life that is added to the water in the container to prolong the useful life of cut-flowers.

2. Small, interesting containers for flower arrangements. That word keeps coming up — but really it is part of good living (isn't it?) to make our homes beautiful inside as well as outside. Containers — in interesting shapes, colors and materials, such as copper, brass, ceramics, wood and plastics.

3. Hand tools, her very own, so that she has no excuse for getting into yours!

4. A “ladies’ spade.”

5. Dried Material for her to use in making winter bouquets, or one already expertly arranged for her.

6. The life-saving Gift Certificates for the last minute shopper.

III. For THEIR House and Garden:

1. Garden Hose in 50-foot lengths and good serviceable sprinklers — for instance, Rainbird or Rain King. Nothing could be more welcome to new home owners. These items make a sizable hole in the family budget just when everything else has fully depleted the spare cash.

2. Hand Watering Can — gallon-size plastic, or two- or three-gallon-size galvanized metal — to be used exclusively for weedicides.

3. Shrub Guards to protect those precious evergreens — a must.

4. A Tank-type Sprayer — the really special one, Strollin Sprayer, on wheels — takes all the weight off and allows one to reach beyond the hose length.

5. Holland Bulbs. These are best planted in early fall, but if the ground is not frozen too hard, they may be set out even after Christmas. They are fully appreciated from early March to late May.

6. Amaryllis Bulbs for the house — huge, fat bulbs, either started or ready for the indoor gardener to start. The most satisfying gift I can think of. Blooms as much as 10 or 12 inches in diameter, with four to six flowers on one flowering stem. They really should be high on everyone's gift list.

In checking my notes I find that I have overlooked mentioning several items of great importance in outdoor gardens — lights, statuary, bird baths, bird feeders, small and large frogs, turtles, ducks and chicks — to name a few. While not all of these appeal to all gardeners, one of them might appeal to those special gardening friends and Christmas comes but once a year!

Indoor plants make a home. Built-in planters or windows with proper exposure are good beginnings. Most house plants want good light but not direct sunlight. The exceptions are usually chrysanthemums, poinsettias, begonias, cyclamen, aphelandra, cineraria, geraniums — all cheerful and calling attention to themselves. Blooming oleanders, bougainvilleas, hibiscus, want sun. Gardenias, camelias, stephanotis all want a cool room with no direct sunlight. This now leaves ferns and certain foliage plants, for the darker areas of the house. Philodendrons are lovely, both huge varieties and small dainty ones in interesting containers. Palms and ferns are suitable for the new modern-treatment homes. All such plants are excellent Christmas gifts.

But for those who can't find what they want there are Gift Certificates which enable the giver to specify what they are to be used for. These have opened up a new world of possibilities for those who make gifts to gardeners — roses, evergreens, shrubs, annuals for summer color, rock-garden plants, an accent piece, wood, rocks, fertilizer, magazines and books.

If none of these appeal, there are always the "Jonny Planters"!



Pete

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? ? ?



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? ?

Ponders

Dear Pete,

My chair-bound garden friend needs an interest stimulator to boost him through the holiday season. What would you recommend for

ZESTLESS

Dear Zestie,

A real exhilarator is the giant hybrid *Amaryllis* which produces spectacular blossoms in white, pink, orange, even deep red. A single bulb will reward your friend with four to eight gorgeous flowers.

He'll think the world is truly his onion whether he plants the 10-inch bulb himself or examines one potted by the nurseryman. Bulbs should be planted in good garden loam with two-thirds of the bulb exposed. Pot diameter should be only three inches greater than the diameter of the bulb. Keep at a temperature between 60 to 70 degrees, do not water until the flower bud is in sight and then only sparingly. When leaves begin to develop, water freely, sit back and watch it grow!



By measuring the plant's growth each day Zestless can have more fun than Jack did with the beanstalk. The entire spectacle from bud to blossom takes about six weeks. Infrequently the bulb sends up a second blossom stalk.

An added feature is that, by following directions included with the bulb, repeat performances may be scheduled for succeeding years.

Dear Pete,

I've mothered my Christmas Cactus for years, yet I've never been blessed with a blossom in or out of the holiday season. What shall I do to instill the idea of giving—giving blossoms, that is?

CACTUS JILL

Dear Jill,

Giving comes from the joy of good living. According to cactologist Ed Sherman, good living for a Christmas Cactus means planting in fairly rich porous soil, shade in the open during late spring and summer with frequent syringing and keeping the soil generally on the dry side.

Brought into a sunny place with 50 to 60 degree temperature in the autumn and given more frequent watering, Zygocactus will flower and be a delight for some fifteen days — not necessarily at Christmas time.

Mr. Sherman cautions, "Never water overhead when buds are forming." Bud dropping could be caused by too much or too little water, presence of gas or excessive nicotine fumes, cold drafts and moving plants about. One author even suggests too much company will affect the plants. So remember — do not disturb, keep away from drafts, give up smoking if necessary, and if all else fails, be anti-social! At Christmas time?



LEE CHAMBERS

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of
Trees, Shrubs and Evergreens

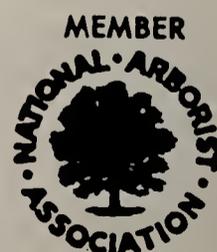


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PROPAGATING EVERGREENS

by

MATURE WOOD CUTTINGS

CARL J. C. JORGENSEN, *Associate Professor in Horticulture,*
Colorado State University

SEVERAL METHODS of propagating evergreens asexually have been devised. Commonly such methods include cuttings, grafting, budding and layerage. Where the home owner desires to have one or two plants, probably layerage would be the answer for low growing or spreading varieties. In such cases the procedure is simply to take one of the lower side branches and bury a portion of the stem close to the crown, leaving the tip portion of that branch exposed. If the buried section is nicked with a knife in two or three places, rooting is aided. After two or three seasons, the layered portion will have a well developed root system and can then be severed from the mother plant and placed in a new location.

Commercially, many of the broadleaf and narrowleaf evergreens can be propagated by cuttings of mature wood taken in fall or early winter. While many species of evergreens can easily be grown from seed, these seedlings may not have the desirable characteristics of the parent as to shape, size, color and foliage characteristics. The choice varieties thus have to be propagated by graftage or by cuttings. Unfortunately many of our upright junipers, pines and spruces will not readily propagate by cuttings and are therefore produced by grafting. This does leave a number of desirable species that do root well from cuttings. Among these we could mention all forms of arborvitae and yew and practically all spreading forms of juniper. A few of the upright junipers should be also included.

Evergreen cuttings are slower to root than those of deciduous plants, some taking six to eight months. Under our system, we expect the majority of the cuttings to root in eight to twelve weeks. Any that have not rooted in that length of time are discarded.

We take fairly large stem cuttings in November or December. By this time the wood is in good condition, that is, well ripened. We trim off the newest tip growth and try to leave some older hardened wood at the base of the cutting. Since we want the leaves to continue to manufacture food during rooting, we try to retain as much leaf surface as possible. Obviously we have to remove leaves (needles) from a two inch portion of the lower stem to be inserted in the rooting media. After trimming we have a cutting six to eight inches long. One precaution should be mentioned. We make our cuttings on a day when the temperature is above freezing. In other words, we never cut or trim cuttings while frozen.

One further procedure is to wound the basal portion of the trimmed cutting. This we accomplish by lengthwise slitting of the bark for a distance of one to one and one-half inches from the basal end. A single-edged razor blade makes a fairly efficient tool for this purpose. The slit should just be deep enough to cut through the bark. Make two or three of these cuts around the stem depending on the size.

A sand or sand-peat medium works fairly well. However, in recent years we have developed a different procedure here at Colorado State University which not only speeds up the rooting but also gives us a high percentage of rooted plants. Our propagating bench is furnished with bottom heat by means of steam pipes about 18 inches below the bench. The entire space below the bench is enclosed with transite. This retains and evens out the steam heat. The heat is thermostatically controlled. A thermocouple is placed in the medium about an inch from the bottom and we maintain a temperature in the medium of 75° to 80°. The temperature in our propagating house is approximately 65° to 70°. The bench is filled with Perlite (a white expanded mica product) to a depth of six inches. We have an overhead automatic mist system placed three feet above the bench. It consists of one-eighth inch copper tubing with spray heads at 18-inch intervals covering the bench area. This is controlled by a clock timer which allows us to vary both the length of time of misting and also the interval between mistings. We feel a two second misting every minute is about right under our conditions in the propagating house, which is one section of our greenhouse range.

Before sticking the cuttings we treat the basal portion with Rootone which is a talc preparation containing naphthalene acetic acid. We simply dip the cuttings in the powder and shake off the excess. We make furrows in the moist Perlite and insert the cuttings to a depth of the trimmed stem which is approximately two inches. Also we make sure that each cutting is separate and touches no other cutting. This precaution eliminates browning and rotting of the leaves. No shading is necessary with the intermittent overhead mist.

This system has resulted in excellent percentages of rooted cuttings of the following:

<i>Juniperus chinensis glauca hetzi</i>	Hetz Blue Juniper
<i>J. chinensis pfitzeriana</i>	Pfitzer Juniper
<i>J. chinensis pfitzeriana "Blue"</i>	Blue Pfitzer
<i>J. chinensis pfitzeriana compacta</i>	Compact Pfitzer
<i>J. chinensis "Sargentii"</i>	Sargents Juniper
<i>J. horizontalis "Bar Harbor"</i>	Bar Harbor Juniper
<i>J. horizontalis "Douglasii"</i>	Waukegan Juniper
<i>J. horizontalis plumosa</i>	Andorra Juniper
<i>J. procumbens</i>	Several varieties
<i>J. sabina</i>	Savin Juniper
<i>J. sabina tamariscifolia</i>	Tamarix Juniper
<i>J. squamata "Meyeri"</i>	Meyer Juniper
<i>Taxus cuspidata</i>	Japanese Yew
<i>Thuja occidentalis</i>	American Arborvitae

We have also had limited success with our own *Picea pungens*, Colorado Spruce, with this method. Cuttings should be taken in late winter.

After the majority of cuttings of a variety have rooted, we pot in three inch pots and carry in the greenhouse until spring when we can transplant these established plants directly to gallon cans. These are placed in our outdoor container area for continued growth.

THE CHRISTMAS TREE

MRS. JOHN SCOTT

THE CHRISTMAS TREE book proclaims to be “an evergreen garland filled with history, folklore, symbolism, traditions, legends and stories.” It is, and more, too.

Glancing through the contents, and selecting a few chapters at random, here’s “Christmas Through the Ages.” This is the warp and woof of paganism and christianity that explains many of our rugged traditions. “Out of Paradise” is about a play, presented during advent, concerning the sin of our first parents, Adam and Eve. These medieval thespians had one prop on stage, a fir tree hung with apples. This evergreen Paradise tree symbolized immortality and outlived its actors. Wafers (then cookies) were added to the Paradise tree. Roses, emblem of beauty and love, were next, and were usually made of paper or cloth. By 1740, “The Christmas tree in Germany” chapter tells of “. . . trees lighted and covered with gilt nuts, sheep, dolls, dishes, fruit, confectionery and figures of the Christ Child.”

“The Christmas Tree Takes Root in America” and by 1850 it was the height of fashion for the festive season. A year later, a far-sighted New Yorker launched the Christmas Tree trade. There are more chapters on the evolution of the tree, from “. . . large boughs placed against the wall or suspended from the ceiling . . .” to “live trees of various sizes in pots.” Trees were often grown in tubs or containers from year to year.

But the book presents up-to-date ideas for Christmas trees, too. Besides many variations of espaliered and topiary trees, there are trees contrived of containers of flower pots, oak leaves, pyramidal wooden frames, ivy leaves, etc. The Kissing ball takes on tree decor, too.

Another chapter is filled with short new and old “Stories and Legends of the Tree.”

There are two pages of “Children’s Books About the Christmas Tree” with “A selected list of Christmas tree stories, plays, poems and carols for the pleasure of children and all who are young at heart.”

The bibliography lists approximately a hundred references, from which many related books could be read or purchased.

The book itself is Christmas Red and most attractively illustrated with over two hundred sketches on the margins. There are also black-and-white photographs, color pages and reproductions of old paintings.

Daniel J. Foley is the author and he’s no Johnny-come-recently to the writing business. For six years he was editor of *HORTICULTURE*, America’s oldest garden magazine. This is his sixth book published. After reading *THE CHRISTMAS TREE*, I had the satisfied feeling that this is the tree book to end tree books.

It came out just before Christmas last year, costs \$3.50. Published by Chilton Company, Philadelphia 39, Pa. Call your local book store. Many have stocked *THE CHRISTMAS TREE*.

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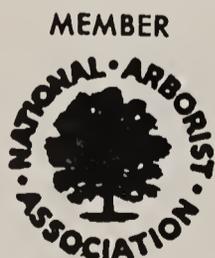
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